Eastern Regional Power Committee

Minutes of 116th OCC Meeting held on 23rd December, 2015 at ERPC, Kolkata

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

Item no. 1: Confirmation of minutes of 115th OCC meeting of ERPC held on 20.11.2015

The minutes were uploaded in ERPC website and circulated vide letter dated **04.12.15** to all the constituents. No comments were received till date.

Members may confirm the minutes.

Deliberation in the meeting

Members confirmed the minutes of 115th OCC meeting.

PART A

(List of Items to be discussed for which the details are given at "Part B")

B.1. Under performance of Thermal Power Stations of Eastern Region
B.2. Furnishing of data for Electricity Generation Targets for the year 2016-17
B.3. Preparation of Load Generation Balance Report (LGBR) of ER for 2016-17
B.4. SPS at JITPL plant -- JITPL
B.5. Status of UFRs healthiness installed in Eastern Region
B.6. Healthiness of SPS existing in Eastern Region
B.7. Network & Chuzachen SPS review proposal in view of reduced NOC – Chuzachen
B.8. Status of Islanding Schemes of Eastern Region
B.9. 11KV Auxiliary power supply of Powergrid Substation
B.10. Commissioning of 400 kV Ind-Bharath to Jharsuguda D/C (dedicated line)
B.11. Installation of Stand-by Meters at Malda for 400kV Farakka-Malda D/C
B.12. Status of PLCC system installed in Eastern Region
B.13. Erroneous recording of data by Interface Meters
B.14. Non Receipt of SEM data from Various Locations
B.15. Non-payment of Reactive energy charges by WBSETCL/WBSEDCL
B.16. Status update of previous decisions/follow up actions
B.17. Third Party Protection Audit
B.18. Preparation of crisis management plan for Cyber Security in Power Sector in line with CERT-IN
B.19. Certification through BIS as per IS 18001:2007 to all generating/ transmission units
B.20. Energy Generation data management from Renewable Energy Sources
B.21. Sub-committee on "Integration of Renewable Energy Sources".
B.22. Data of Peak Demand
B.23. Pollution mapping for Eastern Region
B.24. Updating of Restoration Procedure of Eastern Region for 2015
B.25. Furnishing of data for preparation of reports
B.26. Nodal coordinators for web based scheduling software
B.27. Antitheft charging of lines from Meramundali end
B.28. Dynamic data of Generator Models required in PSSE for Simulations
B.29. Restoration of SCADA data
B.30. Auto-Reclose (A/R) scheme of 400kV Jeypore- Gajuwaka D/C line
B.31. Mock Black start exercises in Eastern Region

B.32. Restricted Governor Mode of Operation
B.33. Availability Declaration and Power Scheduling of MPL
B.34. Reactive Power performance of Generators and GT tap position optimization

PART B

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

Item No. B.1: Under performance of Thermal Power Stations of Eastern Region

The Monthly Generation Report for the month of September, 2015 published by CEA indicates the dismal performance of the Thermal Power Generating Stations of the country as a whole and Eastern Region in particular. The analysis of data and subsequent examination shows that the thermal power stations of Eastern Region are running on low PLF. The list of such Thermal Power Stations running under PLF less than the national average PLF of 60.90% is enclosed at **Annexure-B1.1**.

The efforts could have been initiated for improvement of the operating parameters of these stations viz a viz PLF, Heat Rate, Secondary Fuel Oil consumption and Aux Power consumption as well as early rectification of the outages.

CEA communicated the issue to all the respective constituents vide letter dated 2nd November, 2015 and advised to place their proposals to improve the performance.

The utilities place their concrete proposal/action plan for the entire financial year for improvement of PLF, Heat Rate, secondary fuel oil and auxiliary power consumption of their Thermal Power Stations.

Deliberation in the meeting

TVNL has submitted their proposal.

NTPC informed that they have low PLF because of less schedule and not because of poor performance of their generators.

OCC advised NTPC & other generators to submit their comments along with the road map for improvement.

Item No. B.2: Furnishing of data for Electricity Generation Targets for the year 2016-17

You are aware that the annual exercise of assessment and finalization of the generation targets and the planned maintenance schedules of the generating units for the year 2016-17 is being initiated by CEA. Although the generation performance of the various stations and their planned & unscheduled outages are regularly monitored in CEA but it is felt that a more realistic projection of month-wise generation in the coming year could be made by the respective Station Authorities.

While monitoring the generation performance during the current financial year, it has been observed that power utilities are facing the problem of loss of generation due to no / low schedules and losses accounted on other technical and commercial egresses. Accordingly, it is requested that the following inputs may kindly be submitted to this office:

i) (point no. 1 to 5) The unit-wise proposed generation during 2016-17 (monthly and yearly) along with anticipated generation during 2015-16, the anticipated loss of generation on account of various constraints (e.g. Grid Constraints/ Low schedules/

Reserve shut down /high fuel cost) may be accounted and furnish with necessary details. The details of units like boiler/ turbine make, date of commissioning etc may also be furnished.

ii) (point no. 6) Utilities who have their Power Purchase Agreement (PPA) with various Discoms, Trader, states etc. and the details may be furnished in MW for Long and Medium term Agreement for assessing the expected generation for next year.

iii) (point no 7 (a) and (b) The details of coal linkages from coal agencies and availability of gas/ liquid fuel.

iv) (point no. 8) Unit wise cost of generation and rate of sale of power.

v) Detailed unit-wise schedule of Planned Maintenance (approved by the respective Regional Power Committees) and R&M to be carried out during 2016-17 may also be furnished.

The information may please be furnished electronically at the email address **targetopmcea@gmail.com, kiran.meena@nic.in** with a copy to ERPC (e-mail: **mserpc-power@nic.in**) latest by **31st October, 2015**.

For any inconvenience in submission of data you may contact Mrs. Kiran Meena, Assistant Director, CEA, Ph- 011-26732684, Mob.08588831051 or write to the following address:

Chief Engineer (OPM Division),
Room No.604 (N), Central Electricity Authority,
Sewa Bhawan, R.K. Puram, New Delhi-110066
Ph. 011-26105026 (Telefax)

For your convenience the input formats are also being made available at CEA website **http://www.cea.nic.in** in **Whats New/ Flash News** and ERPC website **www.erpc.gov.in.**

In 114th OCC, all constituents were advised to submit the requisite data electronically by mail as mentioned above latest by 31st October, 2015.

All the constituents agreed to submit.

NTPC TSTPS-Kaniha, OHPC, DPL, DGPC, Tenughat, GMR, CESC, Vedanta and JITPL have submitted the relevant information.

In 115th OCC, OPGC, WBPDCL, WBSEDCL and DVC agreed to furnish the data by end of November, 2015.

OCC requested all the other constituents to furnish the data along with the LGBR data.

Members may update.

Deliberation in the meeting

OCC advised NTPC Farakka, OPGC, WBPDCL, WBSEDCL, DVC, APNRL, MPL, Chuka and Chuzachen to submit their generation target.

Item No. B.3: Preparation of Load Generation Balance Report (LGBR) of ER for 2016-17

The first LGBR meeting for the year 16-17 is scheduled to be held on 30.12.15. All concerned constituents are to submit their generation and transmission outage plan latest by 24.12.15, if not given earlier.

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

Members may note & update.

Deliberation in the meeting

OCC advised all concerned constituents are to submit their generation and transmission outage plan at the earliest, if not given earlier.

Item No. B.4: SPS at JITPL plant -- JITPL

JITPL vide letter dated 3rd December, 2015 informed that SPS is being installed at JITPL plant for load restriction on healthy line in case of tripping of any one line. The SPS logic is enclosed at **Annexure-B4**.

JITPL requested to approve the SPS logic.

JITPL may explain. Members may discuss.

Deliberation in the meeting

JITPL explained that the SPS is designed to limit the load flow on other line when one of the 400kV Derang-Angul D/C line trips.

OCC approved the JITPL proposal.

Item No. B.5: Status of UFRs healthiness installed in Eastern Region

UFR Healthiness Certification for the month of November, 2015 has been received from DVC, CESC and WBSETCL.

DVC vide mail dated 7th December, 2015 informed that the following UFRs are not in service:

Sl No	Name of sub-station	Feeder Details	CD (MVA)	In-service	Test performed	Results/Remarks
1	Durgapur	Graphite India+ Jai Balaji Industries+ Jai Balaji Sponge	74	No	Yes	PT Fuse of the UFR was removed to avoid unwanted tripping.
2	Durgapur	SRB Steel+ Brahma Alloy+ Venky Steel+ VSP+ Shri Gopal Hi-tech	67	No	Yes	PT Fuse of the UFR was removed to avoid unwanted tripping.
3	Hazaribagh	JSEB Hazaribagh	50	No	No	Commissioning taken up.

DVC, OPTCL, JUSNL and BSPTCL may update.

Deliberation in the meeting

OPTCL, JUSNL and BSPTCL have submitted the healthiness certificate.

Item No. B.6: Healthiness of SPS existing in Eastern Region

SPS healthiness certificate for the month of November, 2015 has been received from Chuzachen and GMR.

NTPC, Powergrid, SSL & JITPL may update the status.

Deliberation in the meeting

NTPC, Powergrid-Odisha, SSL & JITPL have submitted the certificate.

Item No. B.7: Network & Chuzachen SPS review proposal in view of reduced NOC – Chuzachen

To accommodate generators like Teesta , Chuzachen, Jorthang HEP to the maximum extent possible through already congested network a modification scheme in the associated network was discussed in 114th OCC and OCC accepted the following arrangement.

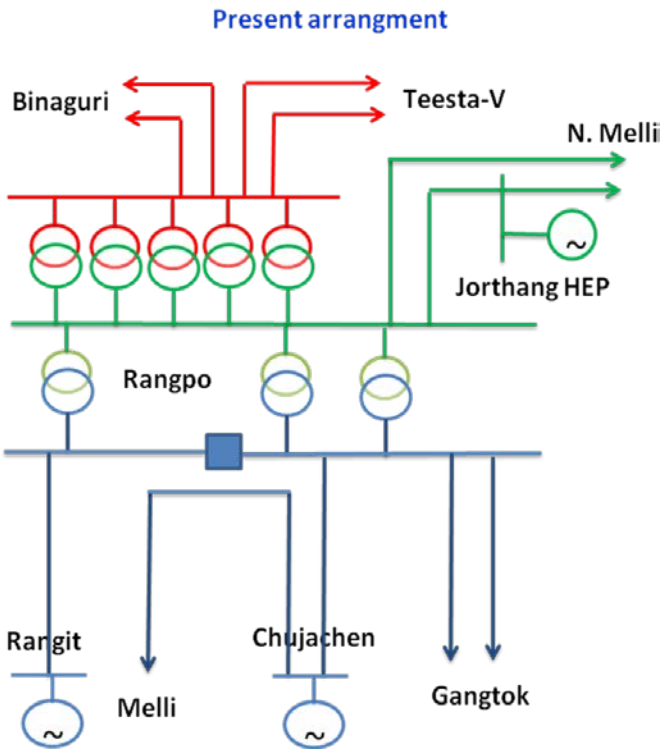

Figure-1

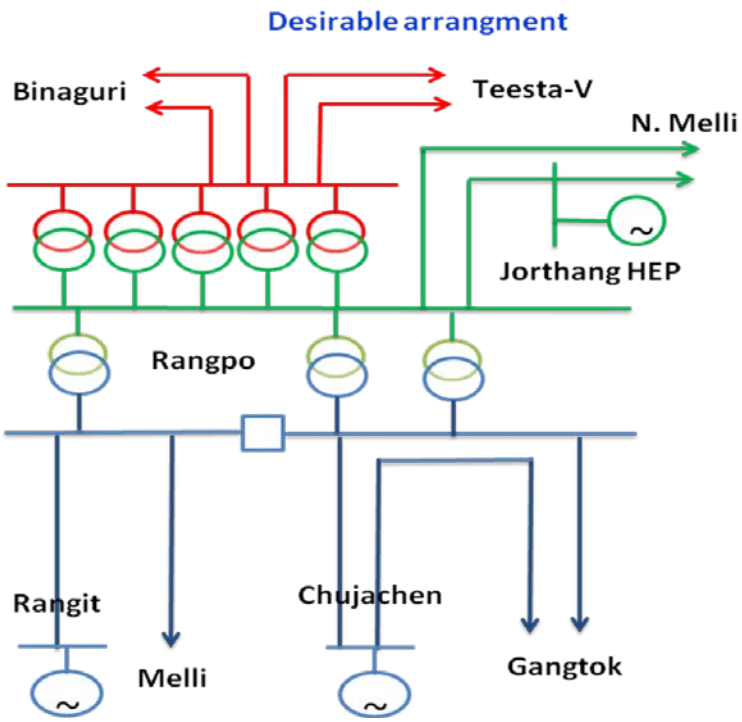

Figure-2

ERLDC explained that at present one 132 kV ckt of Chuzachen is directly connected to Melli without terminating to 132 kV Rangpo. The all other 132 kV feeders i.e. one ckt from Rangit, one ckt from Chuzachen and two ckts from Gangtok are terminating at 132 kV feeders. The same is shown in **figure-1**.

Now for bus split operation the 132 kV Melli ckt will be terminated at Rangpo and will be with 132 kV Rangit feeder in one section of 132 kV Rangpo bus. The 132 kV Chuzachen feeder will be directly connected to one ckt of 132 kV Gangtok feeder. And the second ckt of 132 kV Gangtok along with other ckt of 132 kV Chuzachen will be on another section of 132 kV Rangpo bus. The Bus sectionalizer will be kept in open condition for split bus operation. The scheme configuration is shown in **figure-2.**

In 31st TCC PGCIL informed that the proposal of Bus-Split scheme at 132KV Rangpo S/S as approved in 114th OCC meting are being studied by its engineering wing and roadmap for implementation of the scheme will be placed in 115 th OCC meeting scheduled to be held on 20.11.15.

In 115th OCC, Powergrid informed that for implementation of the above scheme site visits from its corporate engineering division is required.

OCC requested Powergrid to expedite it so that the eastern grid could avoid loss of crucial hydro generation from Chuzachen and Jorthang HEP by early implementation of bus split operation as accepted by OCC.

ERLDC/CTU may update.

Deliberation in the meeting

Powergrid informed that corporate engineering division has visited the site and they will submit the report within 10 days.

OCC felt that the cost may be born by Chuzachen and Jorthang HEP as they are being benefited with this SPS.

Chuzachen informed that they could comment if they know the total cost.

OCC advised Powergrid to place the schedule and total cost for implementation of the scheme in the next OCC meeting.

OCC advised Chuzachen to interact with CTU regarding total cost for implementation of the scheme and Jorthang HEP for cost sharing, so that the issue could be settled in next OCC meeting without further delay on cost sharing issue.

Chuzachen agreed.

Item No. B.8: Status of Islanding Schemes of Eastern Region

B.8.1: 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
2. Tata Power Islanding Scheme, Haldia
3. 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 2015 was received from BkTPS, Tata Power, DVC and CESC.

Members may note.

Deliberation in the meeting

Members noted.

B.8.2: FSTPS Islanding Scheme, NTPC

In 113th OCC, NTPC informed that cable laying for implementation of islanding scheme was completed. Cable termination for bay wise breaker trippings and unit-linked wirings is in progress and will be completed by 30.09.2015.

In 115th OCC, Powergrid informed that the PLCC panels will be delivered by December, 2015 and Battery and Charger by January, 2016.

Powergrid/ JUSNL, NTPC may update the status.

Deliberation in the meeting

Powergrid informed that PLCC panels have been delivered to the site and the battery will be delivered by 15th January 2016. The PLCC system will be commissioned by March, 2016.

B.8.3: Bandel Islanding Scheme, WBPDCL

The islanding scheme has been placed before 31st TCC Meeting for further concurrence and in 31st TCC/ERPC meetings, members agreed and advised WBPDCL to go ahead with the implementation of islanding scheme.

In 115th OCC, OCC advised WBPDCL/WBSETCL to place the tentative roadmap for implementation of Bnadel Islanding Scheme.

WBPDCL/WBSETCL agreed to place the tentative roadmap by next OCC.

Concerned Members may update.

Deliberation in the meeting

WBSETCL has given a detailed presentation of the islanding scheme and explained that additional load is included for winter season (December to February months) to improve the reliability of the islanding scheme. Presentation is enclosed at **Annexure-B8.3***.*

OCC appreciated WBSETCL for detailed analysis and agreed to the revised scheme. OCC further advised WBPDCL to go ahead with the implementation.

Item No. B.9: 11KV Auxiliary power supply of Powergrid Substation.

a) 11KV Aux. power supply at 400/220KV Patna Substation:

In 112th OCC, BSPTCL informed that the issue is being considered and they are exploring to give 33 kV supply from 220/132/33 kV Sipara GSS with existing load of 420 KVA (which is lesser than 1000 KVA load for getting 33 kV supply) as a special case.

In 114th OCC, BSPTCL informed that load requirement at Patna and Biharsharif S/s of Powergrid are very low for getting 33 kV supply however it may be considered as special case if intervened at higher level at SBPDCL.

OCC advised Powergrid to interact with higher authority of SBPDCL for getting 33 kV supply at Patna and Biharsharif S/s of Powergrid as a special case.

In 115th OCC, Powergrid informed that the matter is still pending at SBPDCL/BSPTCL.

OCC advised Powergrid to interact with BSPTCL and SBPDCL on the issue.

Powergrid/BSPTCL may update.

Deliberation in the meeting

Powergrid requested BSPTCL to give an official communication to PGCIL on minimum load restriction of 1000 kVA for getting 33kV supply for further course of action at PGCIL end.

OCC advised BSPTCL to send the letter with a copy to ERPC Secretariat. BSPTCL agreed.

b) Auxiliary power supply for 400KV Berhampore Powergrid Substation--Powergid

As per Practice, 400KV Substation should have two nos auxiliary power supplies from two different sources. Accordingly, an application had been sent to WBSEDCL for arrangement of 11kV dedicated feeder from nearby Nabagram & Sagardighi Substations on deposit basis for the auxiliary supply of 400KV Berhampore Substation.

The construction of 11kV dedicated feeder from Nabagram has been completed and at present auxiliary power supply of Berhampore Substatiion is met from the said feeder. However, the reliability and availability of auxiliary supply from the Nabagram feeder is very poor.

Berhampore is a very important station of POWERGFRID, feedeing power to Bangladesh and West Bengal. The reliability and availability of 11KV auxiliary supply is very much essential for the reliable operation of Berhampore Substation.

WBSEDCL to maintain the reliability and availability of 11KV Nabagram feeder used for supplying auxiliary supply to Berhampore Substatioon and construct the dedicated Sagardighi feeder as second source of auxiliary supply to Berhampore Substation.

In 115th OCC, Powergrid was advised to interact with Director (Dist), WBSEDCL.

Powergrid may update.

Deliberation in the meeting

OCC advised Powergrid to interact with Director (Dist), WBSEDCL.

Item No. B.10: Commissioning of 400 kV Ind-Bharath to Jharsuguda D/C (dedicated line)

Ind-Bharath vide mail dated 20.11.2015 has updated the status in 115th OCC as follows:

- All the 125 towers foundations have been completed and 118 have been erected.
- Due to route alignment one tower (i.e. 126th tower) has been increased which is under ROW negotiation.
- Stringing work of 32 km out of 39.74 km line has been completed.
- The bay work at 400 kV Jharsuguda (Kenapalli) S/s is in advanced stage, being executed under the consultancy of Powergrid, will be completed ahead of line.
- Line is expected to be commissioned by December, 2015.

Ind-Bharath may update the latest status.

Deliberation in the meeting

Ind-bharath informed that stringing work of 34 km out of 39.74 km is completed and Line is expected to be commissioned by 15th January 2016.

Item No. B.11: Installation of Stand-by Meters at Malda for 400kV Farakka-Malda D/C

Stand-by SEMs are already installed at the other end of all outgoing feeders of ISGS. In case of Farakka station, no stand-by SEM is installed at Malda end for 400kV Farakka-Malda D/C. Two nos. of SEM at Malda end may be installed to avoid any critical situation.

Members discuss.

Deliberation in the meeting

Powergrid agreed and informed that SEMs will be installed by January, 2016.

Item No. B.12: Status of PLCC system installed in Eastern Region

In 30th TCC/ERPC, Powergrid agreed to restore the PLCC system at both ends (its own end as well as the constituent end) of a line wherein the other ends are not operational for some reasons or others as one time job.

The consolidated details of PLCC replacement as given by Powergrid is placed at **Annexure-B.12**.

In 115th OCC, all the constituents were requested to go through the details of their respective control area and give their comments/suggestion, if any, by next OCC.

Members may give their views.

Deliberation in the meeting

JUSNL informed that they have submitted the cost estimation to their management for approval.

WBSETCL informed that they have referred the cost estimation to their communication wing.

OPTCL submitted that they are installing OPGW and they are planning to implement carrier protection using OPGW. OPTCL letter is enclosed at **Annexure- B.12.1**.

OCC felt that implementing digital carrier protection using OPGW is much costlier than PLCC and advised OPTCL to review the proposal once again. OPTCL agreed to give feedback.

Item No. B.13: Erroneous recording of data by Interface Meters ---ERLDC

i. Lakhisarai(BSPHCL)

SEM data received from Lakhisarai(BSPHCL) of 132 KV Lakhisarai(BSPHCL) – Lakhisarai (PG)-1 line showing erroneous(reversed polarity as compared to PGCIL end) since installation of SEM at BSPHCL end in the month of September 2014. The matter is already informed to the official of BSPHCL and also discussed in 30th CC meeting & 30th TCC/ERPC meeting. However the problem still persists.

In 115th OCC, BSPTCL informed that the issue will be taken up at the earliest and resolved.

BSPHCL may update.

Deliberation in the meeting

BSPTCL informed that the issue has been resolved.

ii. Lalmatia(JUVNL)

SEM data received from Lalmatia (JUVNL) of 220 KV Lalmatia(JUVNL) – Farakka (NTPC) line showing erroneous(2/3rd reading as compared to Farakka end) since last six months. The matter is already informed to the official of JUVNL. However the problem still persists.

In 115th OCC, JUSNL informed that the issue will be taken up at the earliest and resolved.

JUVNL update.

Deliberation in the meeting

JUSNL informed that they have checked the PT, PT fuse and connections and reported that the meter is not working properly.

OCC advised Powergrid to replace the meter. Powergrid agreed.

Item No. B.14: Non Receipt of SEM data from Various Locations ---ERLDC

i. Check Meter at RTPS in DVC

SEM data of Check meter (i.e NP-7533-A) at RTPS Raghunathpur (DVC) of 400 KV RTPS (DVC)– Ranchi(PG) line is not being received by ERLDC since last 15 days. The meter is neither reporting in AMR system nor through DCD.

In 115th OCC, Powergrid informed that one meter is defective and will be replaced within a week.

Powergrid and DVC may update.

Deliberation in the meeting

Powergrid informed that the meter has been replaced on 24-11-2015.

ii. Barh NTPC

SEM data of Check meter (i.e NP-7439-A) installed at Barh NTPC end of 400 KV Patna Line-4 is not being received by ERLDC since last 2 months. It was gathered from Barh that the meter has got defective and will be replaced soon. Till now no action has been taken.

In 115th OCC, NTPC informed that meter has been received; it will be replaced soon.

Powergrid and NTPC may update.

Deliberation in the meeting

Powergrid informed that the meter has been replaced.

iii. Kishanganj in BSPTCL

SEM (NP-6085-A) data of Kishanganj(BSPTCL) of 132 KV Kishanganj(BSPTCL) Dalkhola(Wb) line is not being received by ERLDC since last 3 weeks. The meter was data were earlier being downloaded through AMR. After problem in AMR system the same data is not being sent by BSPTCL downloaded through DCD. Kishanganj was intimated about the problem. Till now the data is not being received by ERLDC.

In 115th OCC, BSPTCL informed that the issue will be taken up at the earliest and resolved.

BSPTCL may update.

Deliberation in the meeting

BSPTCL informed that the issue will be resolved as and when 400kV Kishanganj S/s is commissioned.

Item No. B.15: Non-payment of Reactive energy charges by WBSETCL/WBSEDCL.

The updated position of Receipt/Payment of Reactive Energy Charges in the pool as on 01.12.2015 (considering bill up to 08.11.2015) is indicated that the total outstanding receivable on account of Reactive charges from WBSETCL/WBSEDCL is ` 227.61429 Lac.

ERLDC identified some drawal/injection points of WBSETCL/WBSEDCL system from where WBSETCL/WBSEDCL either draws reactive power during low voltage condition or injects reactive power in high voltage condition. As a result of this WBSETCL/WBSEDCL has to make huge amount as payment of VAR charges in ERPC Reactive pool account.

It has been observed that for the last six months that some of the designated points where Var is being injected to the grid during High Voltage period (103% or above) by WBSETCL/WBSEDCL are as below:

1. 220kV Binaguri-Jaipaiguri D/C
2. 400kV Durgapur-Bidhannagar D/C
3. 400kV Durgapur-Sagardighi D/C
4. 220kV Subhasgram-Haldia D/C
5. 220kV Subhasgram-Newtown/Bantala
6. 400kV Sagardighi-Behrampore D/C
7. 132 KV Siliguri - NBU D/C

On the other hand it has been also observed that there are some points through which WBSETCL/WBSEDCL is drawing Var during Low Voltage period (97% or Below) resulting in defaulter and liable of making payment. The details of WBSETC/WBSEDCL lines are given below:

1. 220kV Subhasgram - EM Bypass D/C
2. 400kV Jeerat – Baherampore
3. 400kV Jeerat - Subhasgram

An amount of 4.30 Cr. is payable by WBSETCL from Apr'15 to Nov'15. WBSETC/WBSEDCL may take suitable action for VAR management at those points to improve voltage profile.

Members may discuss.

Deliberation in the meeting

OCC advised WBSETCL to take appropriate action to manage the reactive power. WBSETCL agreed to look into.

ERPC Secretariat also pointed that Meramundali S/s is also injecting VAR during high voltage and therefore OPTCL is paying huge VAR charges.

OCC advised OPTCL to take appropriate action to control the VAR injection during high voltage at Meramundali S/s. OPTCL agreed.

Item No. B.16: Concerned members may update the latest status.

B.16.1. Status of construction of 400 kV Sterlite-Jharsuguda D/C sections

In 31st TCC/ERPC followed by 115th OCC Vedanta informed that out of 66 tower foundations, 21 have been completed and rest is expected to be completed by December, 2015. Commissioning of line is expected by 15 April, 2016.

TCC advised Vedanta to strictly adhere to the schedule.

Powergrid/Vedanta may update.

Deliberation in the meeting

Vedanta informed that forest clearance is still pending. However, it was informed that considerable progress has been made in tower foundations. Commissioning of line is expected by 15 April 2016.

B.16.2. Status of construction of Chuzachen bay at Rangpo S/s.

In 31st TCC/ERPC meeting, Powergrid informed that payment has been received from Sikkim and they will start the construction work at the earliest.

In 115th OCC, Powergrid informed that the DPR with tendering document will be ready within 2 months and after that DoP, Sikkim will do the tendering.

Sikkim may update.

Deliberation in the meeting

Powergrid informed that tendering documents will be ready by December, 2015 after that DoP, Sikkim will do the tendering.

B.16.3. Non availability of important bays at FSTPP end

In 109th OCC, NTPC informed that 400kV FSTPP-KhSTPP-IV Tie bay will be charged by 1st week of June, 2015.

In 115th OCC, NTPC informed that the work will be done in December, 2015.

NTPC may update.

Deliberation in the meeting

NTPC informed that the work will be done in January, 2016.

B.16.4. Non-availability of Tie bay of 400kV Sagardighi-Behrampore-II

In 114th OCC, WBPDCL informed that the relay settings have been finalized and the tie bay is expected to be commissioned by 15th November 2015.

In 115th OCC, WBPDCL informed that the tie bay will be in service within 2 weeks.

WBPDCL may update.

Deliberation in the meeting

WBPDCL informed that 90% work has been completed and the tie bay will be in service by next OCC.

B.16.5. Non availability of both line Reactors of 400KV Malda-Purnea D/C

It has been observed that both the 63MVAR line reactors of 400kV Malda-Purnea D/C at Malda end are presently under outage. It may be noted that no reply has been received i.r.o mails forwarded by ERLDC to Powergrid in this regard. It may also be noted that on 20/11/15 during evening hours, while charging attempt of 400 KV Malda – Purnea –II was being taken from Malda end, 400 KV Malda - Purnea –I tripped on stage –I overvoltage protection.

Considering the necessity of availability of line reactors at Malda end, Powergrid may intimate the details regarding the outage date of the line reactors, their current status and their expected restoration dates.

Powergrid may update.

Deliberation in the meeting

Powergrid informed that the reactors will be in service by January, 2016.

B.16.6. Status of Bus splitting works at Maithon and Durgapur

It is understood that presently, Bus splitting works at Durgapur have been completed while at Maithon coupling between Bus-II and Bus-IV have been completed, and the works for commissioning of Bus sectionalizer between Bus-I and Bus-II is in progress. Powergrid may furnish the latest status in this regard. On confirmation, fault studies would be done and final decision would be taken in the appropriate forum to run the substations in decoupled mode to ensure that the fault levels are well within the line/equipment ratings.

NTPC/Powergrid may also furnish the latest status/progress of Bus splitting works in the other remaining substations as decided in the SCMs.

NTPC and Powergrid may update.

Deliberation in the meeting

Powegrid informed that segregation of bus 1 and 3 are completed at Maithon and 2 and 4 would be completed by 2nd week of January, 2016.

OCC advised Powergrid to share post splitting SLD and fault level of the S/S to PCC in order to facilitate revise the protection settings as per the new bus bar scheme. Powergrid agreed.

B.16.7. Non-availability of Main bay of 400kV Purnea-Biharshariff-I

Due to blasting of CB of main bay of 400kv Purnea-Biharshariff-I(at Purnea end) the main bay is under outage w.e.f 08/12/15. Under the above circumstances, in case of any outage of the tie bay due to Bus shutdowns, the line would go under outage. As presently, 400kv FSTPP-Malda D/c is under outage, availability of all bays in the section are essential.

Powergrid may hence note that the bay needs to be restored at the earliest. The expected date of restoration may also be confirmed.

Powergrid may update.

Deliberation in the meeting

Powergrid informed that the main bay of 400kV Purnea-Biharshariff-I will be restored by 20th January 2016.

B.16.8. 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 115th 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	5 out of 14 completed. Dec, 2015 (Severe ROW problem)
b.	LILO of one circuit of Katapalli-Sadeipalli220 kV D/C line at Bolangir S/S	One tower left due to forest clearance. End of December, 2015
2.	**400/220 kV Keonjhar S/S**	
a.	Keonjhar (PG)-Keonjhar (OPTCL) 220 kV D/C line	Tender opening 18 Nov 2015
b.	Keonjhar (PG)-Turumunga (OPTCL) 220 kV D/C line	Yet to be awarded
3.	**400/220kV Pandiabil Grid S/s**	
a.	Pratapsasan(OPTCL)-Pandiabil (PG) 220 kV D/C line	It will take 1 year for completion.
b.	LILO of one circuit of Atri-Puri (Samangara) 220 kV D/C line at Pandiabil (PG)	**May, 2016**

OPTCL may update.

Deliberation in the meeting

OPTCL updated that LILO of one circuit of Katapalli-Sadeipalli220 kV D/C line at Bolangir S/S will be completed by March, 2016.

B.16.9. 220 kV inter-connecting lines of BSPTCL with 2x200 MVA, 400/132 kV sub-stations at Lakhisarai & Banka

In 30th TCC, BSPTCL informed that at present they are drawing power from 400/132 kV Lakhisarai S/s through LILO of 132 kV Lakhisarai (BSPTCL)-Jamui S/C at Lakhisarai(PG).

In 112th OCC, BSPTCL informed that LILO of 132 kV Lakhisarai (BSPTCL) - Jamui S/C at Lakhisarai(PG) was removed after the charging of 132 kV Lakhisarai (PG)-Lakhisarai (BSPTCL) D/C line which was earlier temporary arrangement for drawing power from 400/132 kV Lakhisarai (PG).

In 115th OCC, BSPTCL updated the latest status as follows:

Sl. No.	Name of the transmission line	Completion schedule
1.	**The 2x200 MVA, 400/132 kV Lakhisarai sub-station**	
a.	132 kV Lakhisarai (PG)-Lakhisarai (BSPTCL) D/C line	Charged
b.	132 kV Lakhisarai-Jamui (BSPTCL) D/C line	***Charged on 5th Oct, 2015***
2.	**2x200 MVA, 400/132 kV Banka sub-station**	
a.	LILO of 1st circuit of Banka (BSPTCL)-Sabour (BSPTCL) 132 kV D/C line at Banka (PG)	Charged.
b.	LILO of 2nd circuit of Banka (BSPTCL)-Sabour (BSPTCL) 132 kV D/C line at Banka (PG)	***Line completed. Bays will be completed by December, 2015***
c.	132 kV Banka (PG)-Sultanganj (BSPTCL) line-I	Completed
d.	132 kV Banka (PG)-Sultanganj (BSPTCL) line-II	Completed

BSPTCL may update.

Deliberation in the meeting

BSPTCL updated that bays of 2nd circuit of Banka (BSPTCL)-Sabour (BSPTCL) 132 kV D/C line LILO at Banka (PG) will be completed by 31st January 2016.

Item No. B.17: 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).

Members may comply.

Deliberation in the meeting

OCC advised all the constituents to comply the pending observations.

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

In 115th OCC, Members decided to carry out the audit for 400kV Bakreswar (WBPDCL), Sagardighi (WBPDCL), Farakka (NTPC), Malda (PG) & Behrampur(PG) in December/January.

Members may decide the schedule for January, 2016.

Deliberation in the meeting

OCC decided to carry out the audit for 400kV Bakreswar (WBPDCL), Sagardighi (WBPDCL), Farakka (NTPC), Malda (PG) & Behrampur(PG) in January, 2016.

Item No. B.18: 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.19: 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.

Members may note and update the status.

Deliberation in the meeting

Members noted.

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

As per Electricity Act, 2003, CEA has been entrusted with the task of collecting electricity generation data. CEA is monitoring all the existing generating stations with capacity more than 25 MW (Conventional sources only). In recent years there has been appreciable growth in generation from Renewable Energy Sources (RES).

In view of above it was decided to monitor all the generating stations under RES connected to the grid and also to bring out month wise, state wise and sector wise report on RES generation in MU including peak generation from RES.

CEA already requested to nominate Nodal officers at the level of SLDC for the above purpose. However, only few states have responded.

Those SLDCs who have not yet nominated the nodal officers for Energy Generation Data management from RES are requested to furnish the details at following email/Fax:

> Email: ceaopmwind@gmail.com with a copy to rishika.engineer@gmail.com and s.sewak@cea.nic.in
> Nodal officers from CEA: Mrs. Rishika Sharan, Director, CEA, 011-26732663 and 26102263(Fax), Mobile: 9868021299, Mrs. Sarita Sewak, Dy. Director, 011-26732656

SLDCs may note and comply.

Deliberation in the meeting

Members noted.

Item No. B.21: Sub-committee on "Integration of Renewable Energy Sources".

In the first meeting of the committee for National Electricity Plan (NEP) held on 1st September, 2015, it was decided to constitute a sub-committee on integration of renewable energy sources with following terms of references:

a) Issues relating to integration of renewable energy into Power System
b) Balancing requirement for renewable energy
c) Flexible Generation

This sub-committee would be headed by Member (Power System), CEA.

In view of above all the constituents are requested to nominate a member, not below the level of Chief Engineer/Director. It is requested that information including address, email and mobile of the nominated member may be sent to CEA, PSP&PA-II Division within 15 days.

In 114th OCC, OCC agreed to nominate a member for the above sub-committee.

Subsequently nominations received from WBSETCL, OPTCL and CESC.

Other constituents may nominate the committee member.

Deliberation in the meeting

Nomination received from BSPTCL.

OCC advised all other constituents to nominate the committee member.

Item No. B.22: Data of Peak Demand

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.

CESC has submitted the data for the month of November, 2015.

Members may submit the data.

Deliberation in the meeting

OCC advised all other constituents to submit the relevant information.

Item No. B.23: Pollution mapping for Eastern Region

The Pollution Mapping work in ER was started with on-site measurement of ESDD and NSDD. The latest available status is as follows:

Utility	Scope	Installed Locations	Number of locations where 1st set of Measurements Completed
JUSNL	67	27	**6**
BSPTCL	59	52	**40**
WBSETCL	73	70	**43**
OPTCL	164	102	**102**
Sikkim	12	9	**6**

Powergrid ER 1	99	99	**99**
Powergrid ER 2	40	40	**40**
Powergrid Odisha	43	43	**43**

In 112th OCC, WBSETCL informed some measurement kits are not working properly. The Nodal Officer of WBSETCL has been changed and the same will be communicated.

OCC advised WBSETCL to communicate the issue to Powergrid.

OCC advised all constituents to complete the 1st set of measurements and send to Powergrid/CPRI.

In 115th OCC, Powergrid informed that 2 kits of WBSETCL are defective; the same will be sent to CPRI for replacement as kits are under AMC.

Powergrid vide mail dated 10th December, 2015 requested to complete the 2nd set of measurements.

Powergrid also requested to provide probable pollution sources and direction details near the site with specific details e.g. type of pollution sources(factories, Brick Kiln, Agricultural pollutant, Saline pollutant from sea coast), direction form site, distance from site etc.

Concerned Members may update.

Deliberation in the meeting

OCC advised all the constituents to complete the measurements and send to Powergrid/CPRI.

Item No. B.24: Updating of Restoration Procedure of Eastern Region for 2015

In fulfilment of section 5.8 (a) and (b) of IEGC, the Restoration Procedure of Eastern Region has been updated till the current year. Soft copy of the draft-updated procedure would be circulated among OCC members during the meeting. Members may offer their valuable observations by 04th Jan 16 for finalization of the procedure.

ERLDC may circulate the procedure and members may comply.

Deliberation in the meeting

ERLDC circulated the restoration procedure of ER and presented the major changes in the procedure. Presentation is enclosed at **Annexure-B.24***.*

ERLDC requested all the constituents to send their views by 10th January, 2016.

Item No. B.25: Furnishing of data for preparation of reports

ERLDC Control room collects data on daily basis during night hours for computation of Inter-regional and Transnational energy transfers including maximum/minimum flows for incorporation in the daily reports. However, certain difficulties have been faced at times in collection of data w.r.t exchange of power with WR. As System Operators are severely time constrained, it is essential that all such data are made available through a single window vide mail within the shortest possible time after completion of 24:00hrs of the day. As such data furnishing is being handled by CPCC, ER-II, Powergrid(ERTS-II) may kindly ensure that such data is available to ERLDC control Room without any delay.

Powergrid may comply.

Deliberation in the meeting

Powergrid informed that this problem has come due to implementation of unmanned substation.

OCC advised Powergrid to give the relevant data/report of all substations in a single window as that will facilitate ERLDC in discharging effective service.

Powergrid agreed to resolve the issue.

Item No. B.26: Nodal coordinators for web based scheduling software

Presently, development of the web-based scheduling software is at an advanced stage and testing of the same is required before the final commissioning. It is hence requested that nodal persons may be identified for being associated with the testing and commissioning phase of the software.

Constituents nominate the Nodal Officer.

Deliberation in the meeting

ERLDC informed the house that photo type web based scheduling software is ready and it will be tested soon. So ERLDC requested all members to nominate one coordinator from each concerned constituent. It was intimated that all the coordinators will be called and demonstration of software will be done.

Item No. B.27: Antitheft charging of lines from Meramundali end --ERLDC

In the last OCC meeting it was discussed that format B5 was required to be furnished when antitheft charging of a part of the line was done from one end and for tapping of 66kV class and above lines Sub-regulation(6) of regulation 44 were to be strictly complied with for which the matter was to be taken up with the Chief Electrical inspector, CEA. However, ERLDC has not yet received any format or permissions from the appropriate authorities in this regard.

In 115th OCC, OPTCL informed that they have not yet charged the line for antitheft purpose and assured that necessary formats B2 and B5 will be submitted before antitheft charging.

Thereafter, ERLDC informed that no intimation has been received from OPTCL regarding status of antitheft charging of lines or regarding B2 and B5 formats. Pending any intimation it is concluded that OPTCL is not resorting to any antitheft charging of lines.

ERLDC/OPTCL may update.

Deliberation in the meeting

ERLDC intimated that formats B2 and B5 are not yet received from OPTCL and informed that they will not give the code for anti theft charging of the line until they receive formats B2 and B5.

OPTCL informed that they would not require anti theft charging the line as the line will be bought into service by 28th December 2015.

Item No. B.28: Dynamic data of Generator Models required in PSSE for Simulations -- ERLDC

To carry out proper simulation studies in PSSE, actual generator parameters are required as incomplete or incorrect modelling of generator may not give valid simulation result. Hence all the generating companies are requested to furnish data for generator, exciter, governor, PSS of their all generating units in the format.

In 114th OCC, the house was informed that the formats are available at ERPC website. (www.erpc.gov.in)

OCC advised all the generating utilities to submit the relevant information as per the format.

All generating utilities agreed to submit.

Till date, the data received only from Khahalgaon & Barh, NTPC, NHPC Teesta-V and GMR.

In 115th OCC, all the other generating utilities were advised to submit the data latest by 15th December, 2015.

ERLDC may update.

Deliberation in the meeting

The data received from CESC. OCC advised all other constituents to send the requisite information.

It was informed that few constituents were not able to understand the symbols and abbreviations given in the format.

OCC advised ERLDC to give the description of symbols and abbreviations.

ERLDC agreed.

Item No. B.29: Restoration of SCADA data

Updated latest status is circulated in the meeting. During deliberations in 99th OCC it was pointed out by most of the constituents that SCADA problem in many locations are due to behind the schedule progress of work on the part of CTU/PGCIL. OCC advised Powergrid/CTU to expedite and restore at least the priority RTUs by 31st July, 2014.

Updated status is enclosed at **Annexure-B.29**.

CTU/ERLDC may update.

Deliberation in the meeting

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

Item No. B.30: Auto-Reclose (A/R) scheme of 400kV Jeypore- Gajuwaka D/C line

In the past many incidents of overvoltage tripping of 400kV lines emanating from Jeypore S/Stn had occurred. On further examination, it was observed that most of these over voltages were associated with SLG faults in 400kV Jeypore-Gajuwaka line.

In the 33rd PCC meeting held on 21-07-15, it was clarified by PGCIL that for 400kV Jeypore-Gajuwaka line, 3-ph tripping and auto-reclosing scheme has been implemented at Gajuwaka end, whereas, at Jeypore 1-ph tripping and auto-reclosing would occur for any SLG fault (in Z-I).

PGCIL further explained that 3-phase tripping scheme had been adopted at Gajuwaka end on advice of OEM of HVDC, for avoiding commutation failure of the converter on AC side voltage unbalance & 3rd harmonics, which might occur if 1-ph tripping scheme had been implemented.

In this connection, it is stated that 3-ph tripping at Gajuwaka end and 1-ph tripping at Jeypore end is likely to trigger high voltage condition at Jeypore, as the two healthy phases of the 220km long line remain idle-charged during the dead time. PGCIL may therefore consider implementing 3-ph tripping at Jeypore end also.

It is further requested to take necessary action to ensure that voltage input for the PMU at Jeypore is obtained directly from the 400kV bus PT, instead of the arrangement existing at present. This is essential so that the PMU records the true bus voltage of Jeypore for all possible trippings.

112th OCC advised Powergrid to consider implementation of 3-ph tripping and auto-reclosing scheme at Jeypore end.

Powergrid informed that voltage input to the PMU at 400kV Jeypore S/s has been connected from 400kV bus PT.

In 114th OCC, Powergrid informed that they referred the issue to their corporate office and reply is awaited.

In 115th OCC, Powergrid informed that they will submit their reply by next week.

Powergrid may update.

Deliberation in the meeting

Powergrid agreed to implement 3-ph autoreclosure for 400kV Jeypore- Gajuwaka D/C line however they requested ERLDC to carry out the study.

OCC felt before implemetation of the scheme CTU should do proper study and therefore advised Powergrid to do the needful at the earliest.

Item No. B.31: Mock Black start exercises in Eastern Region – ERLDC

i) The status of black start exercises

The schedule of the proposed black-start exercises for F.Y 2015-16 is as follows:

Sl no	Name of Hydro Station	Schedule	Tentative Date	Schedule	Tentative Date
		Test-I			
1	U.Kolab	Last week of May, 2015	*Done on 16/07/15*	Last Week of January 2016	
2	Maithon	1st week of June 2015	***After Oct, 2015***	1st Week of October 2015	*Done on 23-12-2015*
3	Rengali	2nd week of June 2015	***Done on 13/10/15***	Last week of November 2015	
4	U. Indravati	3rd week of June 2015	*Done on 16/07/15*	2nd week of February 2016	
5	Subarnarekha	2nd week of October 2015		1st week of January 2016	
6	Balimela	1st week of November 2015		1st week of March 2016	
7	Teesta-V	2nd week of	***2nd week of***	Last week of	

		November 2015	***Dec, 15***	February 2016	
8	Chuzachen	1st week of May, 2015	***2nd week of Dec, 15***	2nd week of January, 2016	
9	Sikidri	Done on 9th June, 2015			
10	Burla		***Jan, 2016***		

Members may update.

Deliberation in the meeting

DVC informed that black start exercise of Maithon HEP was carried out on 23-12-2015.

ii) Mock Black Start exercise for Chuzachen and Teesta

As per decision taken in the previous OCC meetings, mock blackstart exercise of Teesta and Chuzachen with load segregation in Sikkim and North Bengal(for running in islanded mode)has been planned. Accordingly, ERLDC would be presenting the network for finalization of the load segregation and the procedure of switching actions to be adopted sequentially for successful islanding and re-synchronization of the islands. Sikkim and SLDC,WBSETCL may confirm/suggest to finalize the load segregation and the switching actions. Also, nodal persons may be identified to ensure that the operators are well versed with the procedure/switching actions to be performed. The dates may also be finalized.

ERPDC may present the details. Sikkim, WBSETCL, NHPC and Chuzachen may confirm.

Deliberation in the meeting

ERLDC presented the procedure to carry out black start exercise for Teesta-V. SLD is enclosed at **Annexure-B.31***.*

After deliberation, OCC decided to carry out black start exercise for Teesta-V in January, 2016 and for Chuzachen in February, 2016.

iii) 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

Constituents ensured healthinessof DG sets under respective control area.

Item No. B.32: Restricted Governor Mode of Operation

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.

ERLDC informed that on 12.10.2015 there was sudden load loss of 900 MW in NR and they observed 0.11 Hz change in the grid frequency.

As per the data of ERLDC they have received the RGMO/FGMO response only from Burla, Kahalgaon, Teesta-V and SSL generators. The response of other generators are not satisfactory.

OCC advised all the generators to send the FRC response for the event.

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 generator 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.

Governor response for the event of 12-11-2015 at 23:05 hrs based on ERLDC SCADA data is already posted in the group

Members may update.

Deliberation in the meeting

OCC requested all the constituents to give the mail ids.

Item No. B.33: Availability Declaration and Power Scheduling of MPL--MPL

ERLDC vide its letter no ERLDC/OA/2012 dated 5th October 2012 has denied scheduling MPL power citing the following reasons:

- MPL has part of its full capacity tied under LT PPA and allocations are in MW and not in percentage terms.

- CERC has determined the tariff of a part of the Capacity.
- Long term contracts entered into by MPL with its beneficiaries are bilateral in nature.

MPL has now secured its entire capacity of 1050 MW in long term PPA and CERC has determined tariff for the entire capacity of 1050 MW vide their order no 274/2010 dated 19th November 2014.

In view of the above, MPL has requested ERLDC in its letter dated 26th August 2015 to schedule its power and certify its availability as is done in case of other ISGS.

In 115th OCC the issue was placed but MPL was not present in the meeting.

Deliberation in 115th OCC meeting:

OCC took serious note of non-representation by MPL.

However, DVC and WBSEDCL, as beneficiary of MPL, responded that MPL is having LTA for full quantum of power and the tariff of whole plant (i.e. 1050 MW) was determined by CERC. So, scheduling of MPL may be done at par with other ISGS stations.

ERLDC pointed that the allocation of MPL power is not in percentage-wise (like ISGS stations) rather it is in MW-wise. So it is difficult to calculate percentage-wise allocation for MPL units in case of any back down or shutdown of units.

OCC advised that MPL should approach CEA/CERC/MoP for further clarification on the issue along with percentage-wise allocation of MPL power.

Further, OCC advised all the beneficiaries of MPL, if they want, to give their consent letters to ERPC secretariat so that it can be forwarded to CEA for issuing the percentage-wise allocation for MPL power.

Thereafter, MPL vide letter dated 9th December, 2015 again submitted an agenda as follows:

SCHEDULING OF MPL AND DECLARATION AND CERTIFICATION OF AVAILABILITY AND PAYMENT OF ARREARS BY DVC AS PER CERC TARIFF ORDER FY 2011-14

Maithon Power Limited ("MPL") having its Generating Station at Maithon, Dhanbad with an installed capacity of 1050MW (2 x 525 MW) had during October, 2010 approached the Hon'ble Central Electricity Regulatory Commission ("Hon'ble CERC") through Petition No. 274/2010 for the approval of the Capital Cost and the Generation Tariff for the period FY 2011-14. Pending the disposal of the above Petition, the Generating Units 1 and 2 of MPL had achieved Commercial Operation on 01.09.2011 and 24.07.2012 respectively. MPL therefore raised the Monthly Invoices on all its Beneficiaries namely, Damodar Valley Corporation ("DVC"), West Bengal State Electricity Distribution Company Limited ("WBSEDCL") and Tata Power Delhi Distribution Limited ("TPDDL") based on the Provisional Tariff Orders passed by Hon'ble CERC dated 11.11.2011 and 15.05.2012.

MPL in 2012 had requested ERLDC to schedule and declare availability for MPL. ERLDC vide its letter no. ERLDC/OA/2012 dated 5th October,2012 denied scheduling MPL power citing the following reasons:

- MPL has part of its full capacity tied under LT PPA and allocations are in MW and not in percentage terms
- CERC has determined the tariff of a part of the Capacity.
- Long term contracts entered into by MPL with its beneficiaries are bilateral in nature.

In view of the denial by ERLDC, for the purpose of invoicing , the computation of Availability is based on the Declared Capacity ("DC") provided by MPL to each of the Beneficiaries individually, on day-ahead basis. Since, the Contracted Capacity with each of the Beneficiaries is based on fixed quantum of MW and not on the basis of % allocation unlike other ISGSs, MPL computes the Availability for each Beneficiary based on their respective Contracted Capacity and raises the Monthly Invoices accordingly. Such practice has been followed by MPL since the declaration of COD and honoured by all the procurers, albeit under protest only by DVC.

The Hon'ble CERC, after prudence scrutiny, passed the Final Tariff Order for MPL on 19.11.2014 and directed MPL to recover the Revenue Gap / (Surplus) from its Beneficiaries. MPL computed the arrears for the Tariff Period FY 2011-14 and raised Supplementary Invoices on all its Beneficiaries with the relevant workings to clarify the computation of arrears.

DVC has disputed the methodology computation of the Availability based on respective Contracted Capacity for each Beneficiary and has proposed to compute Availability as per the installed Capacity. DVC has withheld payment of the Capacity Charges claimed by MPL through the Supplementary Invoices as well as from current invoices based on the final CERC Tariff Order.

The unpaid amounts are now overdue by more than ten months, which has created completely avoidable financial strain on MPL. MPL requested to resolve the issue.

Members may discuss.

Deliberation in the meeting

After detailed deliberation, OCC advised MPL to approach CEA/CERC/MoP for percentage-wise allocation of MPL power. On issue of non-acceptance of billing by DVC & West Bengal OCC requested all concerned parties to follow existing regulation and if required further clarification may be sought from Regulators.

Item No. B.34: Reactive Power performance of Generators and GT tap position optimization

Maximum and minimum voltage was observed (data taken from SCADA)

Generating stations have been monitored for sample dates in the month of November 15:

Power Plant	**Max and Min Voltage observed for Nov 2015 (KV)**	**Date for monitoring (**November **2015)**
Farakka STPS	424,404	13,12
Khalgaon STPS	422,406	13,12
Talcher STPS	411,400	16
Teesta	410,402	21
Bakreshwar TPS	408,381	14
Kolaghat TPS	420,391	10
Sagardighi TPS	Data not available	---
MPL	422,408	13
Mejia-B	424,414	05

DSTPS	426,415	18
Adhunik TPS	426,406	22
Sterlite	429,420	08

ERLDC may update.

Deliberation in the meeting

ERLDC presented the performance of generators. Members noted.

a) Schedule for reactive capability tests

In 115th OCC, members updated the status as follows:

a. Adhunik TPS(both units) –Yet to be confirmed by Adhunik
b. DSTPS(Unit#2 only pending) –Not yet done
c. Mejia#8 (only U#8 pending) – Not yet done
d. Koderma TPS(both units) – Not yet done
e. JITPL(both units) –Procedure given. Not yet done
f. Barh Unit#4 –After PG test

Members may update.

Deliberation in the meeting

DVC informed that Koderma unit #2 has been tested.

b) Optimization of GT tap position at Adhunik, Mejia-B and DSTPS

In 97th OCC, members requested ERPC Secretariat to convene a special meeting for detail deliberation on tap changing proposal before next OCC.

Accordingly, a special meeting was convened on 27th June, 2014. During the meeting following tap position was agreed:

Sl. No.	Utility	Present GT tap position	Agreed tap position in the meeting
1	APNRL: GT-1	8	9
	APNRL: GT-2	3	4
2	Mejia-B, DVC	4	5
3	DSTPS, DVC	5	6
4	MPL	5	6

DVC, APNRL and MPL have changed the GT tap as per the recommended GT tap position.

ERLDC may update the status.

Deliberation in the meeting

Members noted.

PART C:: OPERATIONAL PLANNING

Item no. C.1: Shutdown proposal of transmission lines and generating units for the month of January' 16

Members may finalize the Shutdown proposals of the generating stations for the month of January' 16 as at **Annexure-C.1**.

In 115th OCC, ERLDC informed that constituents are not submitting the shutdown proposal by 5th of the month as decided and this makes difficult for them for compiling, studying and preparing final list of shutdown.

OCC advised all the constituents to strictly adhere to the time schedule for submission of the list of shutdown to ERLDC.

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 Jan, 2016 is given at **Annexure-C.1**.

OCC took serious note on not returning one ckt of 400kV Farakka-Malda D/C line in time (by end of December, 2015) and advised Powergrid to bring the 400kV Farakka-Malda D/C in service positively by 20th January 2016. Powergrid agreed.

A. Shutdown of 400KV Teesta-Rangpo Line-I&II from Teesta end – NHPC

NHPC vide letter dated 4th December, 2015 informed that the annual maintenance of Teesta-V units has commenced from 1st December, 2015. In order to carry out the annual maintenance of EHV equipments at line end and testing of line relays from Teesta end, the shutdown of the lines are required as given below:

Teesta-Rangpo line-I 4th January, 2016 to 9th January, 2016

NHPC may update and Members may confirm.

Deliberation in the meeting

OCC agreed.

Item no. C.2: Anticipated power supply position during January'15

The abstract of peak demand (MW) vis-à-vis availability and energy requirement vis-à-vis availability (MU) for the month of January'15 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, 2016 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	DATE	Date of restoration
MEJIA	2	210	STATOR EARTH FAULT	05/12/15	
MEJIA	3	210	GT DISSOLVED GAS	31/10/15	
DSTPS	2	500	COAL SHORTAGE	16/09/15	
KODERMA	1	500	ASH POND PROBLEM	11/11/14	
CHANDRAPURA	7	250	ROTOR EARTH FAULT	06/11/15	
BOKARO B	1	210	DUE TO LOW DEMAND	21/10/15	
BOKARO B	3	210	TUBE LEAKGE	24/10/15	
DPL	8	250	TO PRESERVE COAL	21/08/15	
KOLAGHAT	3	210	TUBE LEAKGE	13/11/15	
KOLAGHAT	2	210	TUBE LEAKGE	09/11/15	
BAKERSWAR	5	210	OVERHAULING	30/11/15	
WARIA	3	140	TUBE LEAKGE	19/10/15	
SAGARDIGHI	1	300	DUE TO LOW DEMAND	24/11/15	

(ii) Transmission elements

Name of the Line/Element	Outage	Reason	Date of restoration
400 KV FARAKKA - MALDA	04.12.15	RECONDUCTORING	

Members may update.

Deliberation in the meeting

Members noted.

Item no. C.4: Information regarding commissioning of new transmission element

1. 220kV Chaibasa(PG)-Chaibasa(JUSNL)-1&2 were charged for the first time at 13:20hrs and 14:13hrs of 16/11/15 respectively and also 220kV Bus-1&2 at Chaibasa were charged for the first time at 14:43hrs and 14:49hrs of 16/11/15 respectively. Also 220/132 kV, 150MVA ICT-1&2 at Chaibasa were charged for the first time at 15:03hrs and 15:29hrs of 16/11/15 respectively.
2. 50MVA, 132/33kV ICT-1&2 at Chaibasa were charged for the first time at 18:11hrs and 17:34hrs of 17/11/15 respectively.
3. 80MVAR B/R at Chaibasa was charged for the first time at 13:17hrs of 24/11/15.
4. 125MVAR B/R at Jeypore was charged for the first time at 21:36hrs of 30/11/15.

Members may update.

Deliberation in the meeting

Members noted.

Item no. C.5: Status of commissioning of generating station and transmission elements

New generating units:

S.No.	Power Plant	Plant Size	Expected date
1	Raghunathpur Unit#1	2x600MW	
2	Sagardighi Unit #3	500 MW	

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	LILO of Baripada-Mendhasal D/C at New Duburi	
8	765kv Anugul-Srikakulum D/C	
9	400kV Sasaram-Daltonganj D/C &Daltonganj S/Stn	
10	400 kV Ranchi-Raghunathpur D/C	
11	400 kV Meramandali-Dubri D/C	
12	400 kV IB-Meramandali D/C	
13	220 kV TLDP-IV – NJP ckt-2	
14	220 kV Bidhansai-Cuttack D/C	
15	220 kV Girdih-Koderma D/C	

Members may update.

Deliberation in the meeting

Members noted.

PART D:: OTHER ISSUES

Item no. D.1: UFR operation during the month of November'15

System frequency touched maximum 50.28 Hz at 13:02Hrs on 13/11/2015 and minimum of 49.64Hz on 21/11/15 at 07:52Hrs. 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'15.

Members may note.

Deliberation in the meeting

Members noted.

Item no. D.3: Grid incidences during the month of November, 2015

Sl no	Disturbance Place	Date & Time	Generation loss (MW)	Load loss (MW)	Remark	Category
1	JUSNL (Chandil)	06/11/15 at 19:29-19:31hrs	0	140	Total power interruption occurred at Chandil S/s due to heavy sparking in earth phase pipe connector point of 220kV Chandil- Santaldih bay at Chandil end	GD-1
2	BSPTCL (Purnea & Madhepura)	11/11/15 at 19:57hrs	0	530	Total power failure occurred in North Bihar and part of Nepal due to tripping of 132kV Madhepura-Supaul-D/C line on over current protection.	GD-1
3	BSPTCL (Purnea & Madhepura)	19/11/15 at 21:43hrs	0	486	Total power failure occurred in North Bihar and part of Nepal due to tripping of 132kV Madhepura-Supaul-D/C line on over current protection.	GD-1
4	400kV Malda and 220kV Dalkhola	20/11/15 at 20:55hrs	0	380	Multiple trippings occurred from 400kV Malda and 220kV Dalkhola S/s due to which total power failure occurred at Malda and Dalkhola.	GD-1
5	Biharsaiff (BSEB), Tenughat TPS	**23/11/15** at 13:11 hrs.	454	320	Multiple trippings occurred from 220kV Biharsariff and tenughat S/s due to bursting of Y-Ph CT of 132kV Biharshariff- Hatida Ckt –I at Biharshariff end .	GD-1
6	Biharsaiff (BSEB)	**28/11/15** at 17:32 hrs.	0	450	Total power interruption occurred in Biharsariff (BSPTCL) systems due to Snapping of R-Ph jumper of 315 MVA ICT-III bay (220kV side) at Biharsariff (BSEB)	GD-1

Members may note.

Deliberation in the meeting

Members noted.

Item no. D.4: Any other items.

1. **Oscillations during de-synchronization of Teesta-V units.**

ERLDC vide letter dated 4th November, 2015 informed that repeated oscillations having oscillation frequency 0.06Hz and 0.5kV voltage amplitude observed during de-synchronization of Teesta units. The oscillations are persisting up to 4 minutes. Details are as follows:

- On 01-11-2015, the oscillations started at 20:27hrs and lasted upto 20:32 hrs while desynchronizing unit#2 of Teesta-V.
- On 02-11-2015, the oscillations observed from 20:30hrs to 20:34hrs and from 21:58hrs to 22:02hrs at Binaguri while desynchronizing Teesta-V units.
- On 03-11-2015, the oscillations observed from 20:30hrs to 20:34hrs and from 21:58hrs to 22:02hrs at Binaguri while desynchronizing Teesta-V units.

In 37th PCC, ERLDC explained the oscillations as observed during the de-synchronization of Teesta units with the help of PMU plots for the dates mentioned above.

NHPC clarified that usually Teesta units are de-synchronised by reducing the load in automatic mode and finally the Circuit Breaker of the machine gets opened at 5 MW load.

But, when the oscillations were observed and come into the view of NHPC, Teesta the de-synchronisation procedure was modified and now the oscillations has been stopped.

The modified synchronization procedure involves reduction of load manually with opening of the Circuit Breaker of the machine at 10 MW load.

PCC felt that the oscillations might have generated due to change in the adjoining system (addition of Jorthang units) and advised ERLDC and NHPC to check the earlier records if there was any case of oscillations prior to synchronization of Jorthang units.

ERLDC and NHPC may update.

Deliberation in the meeting

NHPC delivered a presentation and explained that the automatic PLC sequence & measurement system is responding with some time gap of around 4-5 seconds delay. This is causing oscillation in grid voltage. After detailed study, the pulse width of PLC has been modified and no oscillations were observed thereafter. Details are enclosed at **Annexure-D4***.*

2. Drawal of start up power by BRBCL--ERLDC

BRBCL, Nabinagar has indicated that they are in need of start-up power for commissioning activities. In this regard ERLDC has already informed BRBCL, Nabinagar regarding the pending documents which are required for availing such start-up power. These include furnishing the filled up formats for requisitioning the start-up power and furnishing of the undertaking as per the requisite format. These are necessary to confirm opening of LC and other requirements which are mandatory prior to drawal of the startup power. On receipt of all the documents RLDC would issue formal permission vide the format for grant of startup power. Only after receipt of the same can the startup power be availed.

The CERC approved procedure for drawal of starup power containing the formats is attached alongwith. It may be noted that pending grant of approval for drawal of startup power the same cannot be availed by any Generating Station.

BRBCL,Nabinagar may kindly confirm.

Deliberation in the meeting

Requisite formats were handed over to representatives from Railway for further necessary action at their end to avail start up power.

Meeting ended with vote of thanks to the chair

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Annexure-A

Participants in 116th OCC Meeting of ERPC

Venue: ERPC Conference Room, Kolkata Time: 11:00 hrs Date: 23.12.2015 (Wednesday)

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Participants in 116th OCC Meeting of ERPC

Venue: ERPC Conference Room, Kolkata Time: 11:00 hrs Date: 23.12.2015 (Wednesday)

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Participants in 116th OCC Meeting of ERPC

Venue: ERPC Conference Room, Kolkata Time: 11:00 hrs Date: 23.12.2015 (Wednesday)

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No. CEA/GO&D/OPM/TPR/2015/
Government of India
Ministry of Power
Central Electricity Authority
OPM Division

Sewa Bhavan, R.K. Puram
New Delhi - 110066
Dated: 28.10.2015

Sub. : Under performance of Thermal Power Stations of Eastern Region-reg.

Reference is invited to the Monthly Generation Report (18 coloumn) for the month of September, 2015 published by CEA, which indicates the dismal performance of the Thermal Power Generating Stations of the country as a whole and Eastern Region in particular. The analysis of data and subsequent examination shows that the thermal power stations of Eastern Region are running on low PLF. The list of such Thermal Power Stations running under PLF less than the national average PLF of 60.90% may kindly be seen at Annexure. Looking into the Annexure it may be concluded that efforts could have been initiated for improvement of the operating parameters of these stations viz a viz PLF, Heat Rate, Secondary Fuel Oil consumption and Aux Power consumption as well as early rectification of the outages.

It is, therefore, suggested that a meeting may be called by ERPC at Kolkata of all the stake holders to discuss the reasons and possible remedies of the same. A convenient date and timing of such meeting may kindly be intimated to this division for attending the meeting. The agenda of the meeting would be as below:

The utilities may come out with a concrete proposal/action plan for the entire financial year for improvement of PLF, Heat Rate, secondary fuel oil and auxiliary power consumption of their Thermal Power Stations.

Encl. As above.

(Chandra Shekhar)
Chief Engineer (OPM)

Member Secretary, Eastern Regional Power Committee (ERPC), Kolkata
No.CEA/GO&D/OPM/Misc./2015/ dated 28.10.2015

Annexure

Central Electricity Authority
Operation Performance Monitoring Division
List of Power Stations of Eastern Region operating below the National Average PLF of 60.90

Name of the Station	Unit No.	Capacity	State	Utility	Date of Stabilization	Fuel	Comm PLF
PATRATU TPS	6	90	JHARKHAND	JSEB	17/12/1971	COAL	16.2
PATRATU TPS	10	110	JHARKHAND	JSEB	01/09/1986	COAL	56.62
MUZAFFARPUR TPS	1	110	BIHAR	NTPC Ltd.	01/03/1986	COAL	43.74
MUZAFFARPUR TPS	2	110	BIHAR	NTPC Ltd.	01/04/1987	COAL	36.81
TENUGHAT TPS	1	210	JHARKHAND	TVNL	01/04/1997	COAL	58.26
MAHADEV PRASAD STPP	1	270	JHARKHAND	ADHUNIK	01/02/2013	COAL	54.49
MAHADEV PRASAD STPP	2	270	JHARKHAND	ADHUNIK	01/06/2013	COAL	33.29
CHANDRAPURA(DVC) TPS	1	130	JHARKHAND	DVC	30/09/1964	COAL	56.94
DURGAPUR TPS	3	130	WEST BENGAL	DVC	31/05/1967	COAL	52.87
DURGAPUR TPS	4	210	WEST BENGAL	DVC	01/12/1982	COAL	17.94
BOKARO `B` TPS	1	210	JHARKHAND	DVC	01/05/1987	COAL	27.56
BOKARO `B` TPS	3	210	JHARKHAND	DVC	01/08/1994	COAL	17.61
MEJIA TPS	1	210	WEST BENGAL	DVC	01/04/1998	COAL	56.78
MEJIA TPS	2	210	WEST BENGAL	DVC	01/11/1999	COAL	45.42

MEJIA TPS	3	210	WEST BENGAL	DVC	01/06/2000	COAL	40.48
MEJIA TPS	4	210	WEST BENGAL	DVC	01/05/2005	COAL	3.87
MEJIA TPS	5	250	WEST BENGAL	DVC	01/10/2007	COAL	45.38
KODARMA TPP	1	500	JHARKHAND	DVC	01/08/2013	COAL	0
DURGAPUR STEEL TPS	2	500	WEST BENGAL	DVC	01/04/2013	COAL	32.52
STERLITE TPP	1	600	ORISSA	SEL	01/08/2011	COAL	25.1
STERLITE TPP	3	600	ORISSA	SEL	01/09/2011	COAL	30.61
STERLITE TPP	4	600	ORISSA	SEL	01/05/2012	COAL	34.72
KAMALANGA TPS	1	350	ORISSA	GMR ENERG	01/05/2013	COAL	59.42
DERANG TPP	1	600	ORISSA	JITPL	06/06/2014	COAL	59.48
DERANG TPP	2	600	ORISSA	JITPL	12/02/2015	COAL	45.97
BANDEL TPS	1	60	WEST BENGAL	WBPDC	30/11/1965	COAL	26.22
BANDEL TPS	2	60	WEST BENGAL	WBPDC	31/05/1966	COAL	37.31
BANDEL TPS	3	60	WEST BENGAL	WBPDC	30/11/1965	COAL	35.47
BANDEL TPS	4	60	WEST BENGAL	WBPDC	31/05/1967	COAL	39.26
BANDEL TPS	5	210	WEST BENGAL	WBPDC	01/04/1983	COAL	0.13

KOLAGHAT TPS	1	210	WEST BENGAL	WBPDC	01/03/1991	COAL	42.03
KOLAGHAT TPS	2	210	WEST BENGAL	WBPDC	01/10/1986	COAL	50.38
KOLAGHAT TPS	3	210	WEST BENGAL	WBPDC	01/04/1985	COAL	46.12
KOLAGHAT TPS	4	210	WEST BENGAL	WBPDC	01/10/1995	COAL	48.04
BAKRESWAR TPS	4	210	WEST BENGAL	WBPDC	01/07/2008	COAL	56.44
SAGARDIGHI TPS	1	300	WEST BENGAL	WBPDC	01/07/2008	COAL	56.99
SAGARDIGHI TPS	2	300	WEST BENGAL	WBPDC	01/02/2009	COAL	33.34
D.P.L. TPS	7	300	WEST BENGAL	DPL	01/06/2008	COAL	47.76
TITAGARH TPS	3	60	WEST BENGAL	CESC	01/08/1984	COAL	38.27
TITAGARH TPS	4	60	WEST BENGAL	CESC	01/08/1985	COAL	40.98
HALDIA TPP	2	300	WEST BENGAL	HEL	21/02/2015	COAL	46.73
FARAKKA STPS	4	500	WEST BENGAL	NTPC Ltd.	01/12/1996	COAL	56.69
FARAKKA STPS	6	500	WEST BENGAL	NTPC Ltd.	01/05/2012	COAL	58.17

JINDAL INDIA THERMAL POWER LIMITED

REGD. OFF.: PLOT NO. 12. LOCAL SHOPPING COMPLEX, SECTOR B-1
VASANT KUNJ, NEW DELHI - 110 070
PHONE : 011-26139256-65 FAX : 011-26121734
WEBSITE : www.jindalgroup.com

Date: 03.12.2015
Letter No.: JITPL/ERPC/03122015

The Member Secretary,

Eastern Regional Power Committee,

14, Golf Club Road, Tollygunge

Kolkata-700033

Fax: 033-24221802

Sub: Agenda point for 116th Operation Coordination sub-Committee (OCC) meeting of ERPC

Dear Sir,

Please refer our letter dated 26/11/15 regarding SPS being installed at our Plant for restriction of load on second line in case of tripping of one line. This is as per CEA MOM dated 13/11/2015 for increasing our connectivity from JITPL and NOC for evacuation of power.

The SPS logic is attached herewith.

It is requested to discuss the matter in ensuing OCC and approve the logic.

Yours sincerely

For **Jindal India Thermal Power Limited**

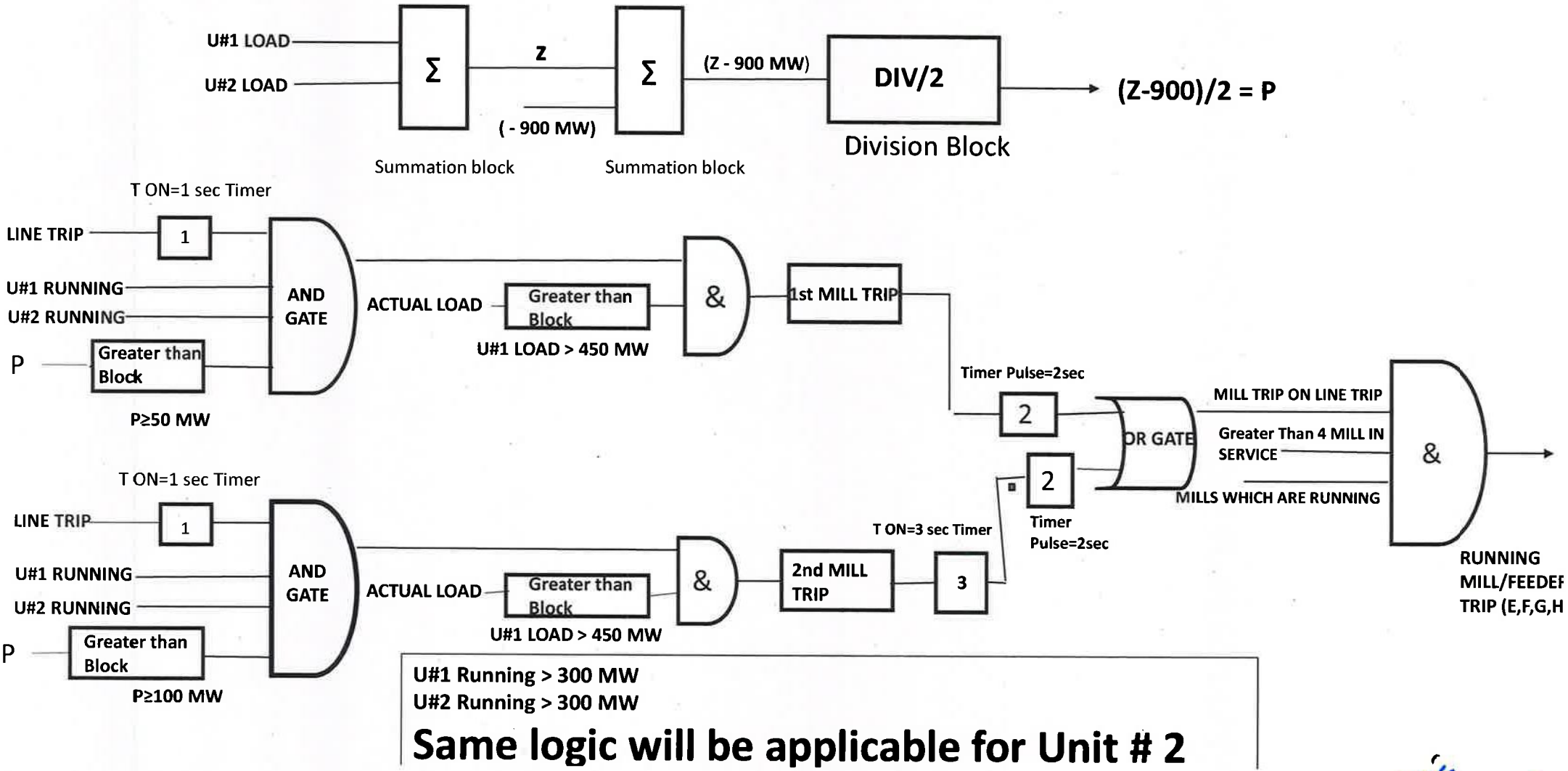
(Authorised Signatory)

JINDAL INDIA THERMAL POWER LTD. NEW DELHI

Cc: The General Manager, Eastern load Dispatch Centre, 14 Golf Club Road, Tollygunge, Kolkata-700033

SPS for limiting load on other line when one of the D/C of dedicated line from Derang-Angul trips one Mill trips, when line trip occur with both the units are running with load more than 300 MW & "P" is greater than or equal to 50 MW & unit load is greater than 450 MW then one mill trips from the top . If P≥100 MW then after 3 sec. one more mill trips from the top elevation

NOTE: Mill Trips only when more then 4 mills are in running condition.



U#1 Running > 300 MW
U#2 Running > 300 MW

Same logic will be applicable for Unit # 2

BANDEL ISLANDING SCHEME

(LOAD BALANCING)

********SLDC*******

LOAD SAMPLING

- MARCH TO NOVEMBER

MONTH OF MARCH , APRIL , SEPTEMBER & OCTOBER HAS BEEN TAKEN INTO CONSIDERATION WITH LOAD VARIATIONS THROUGH OUT THE DAY.

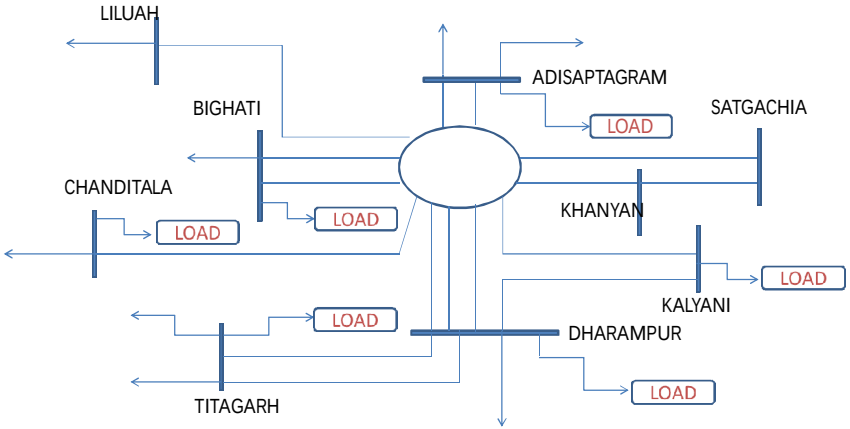
Total no of samples taken
4*24 = 96 Blocks

- DECEMBER TO FEBRUARY

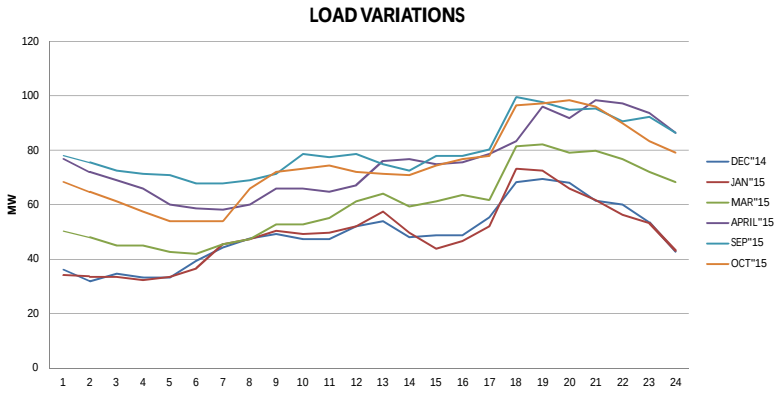
MONTH OF DECEMBER & JANUARY HAS BEEN TAKEN INTO CONSIDERATION WITH LOAD VARIATIONS THROUGH OUT THE DAY.

Total no of samples taken
2*24 = 48 Blocks

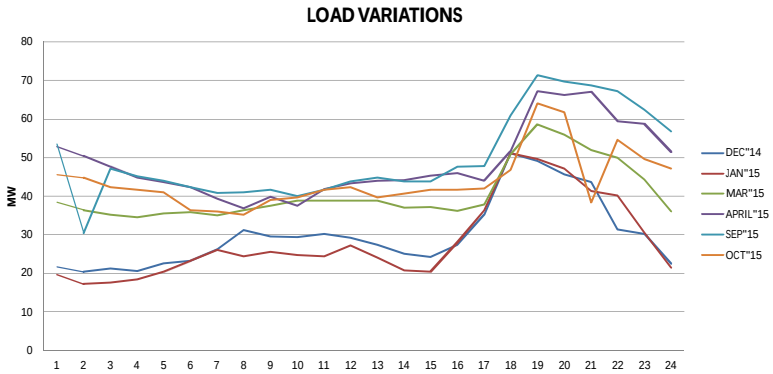
BTPS SYSTEM



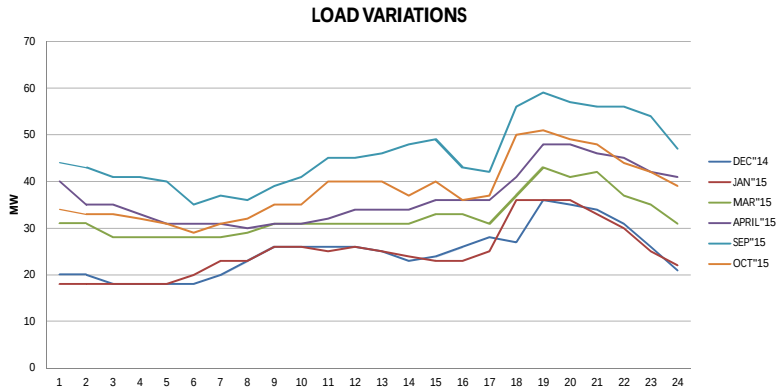
TITAGARH SUB-STATION



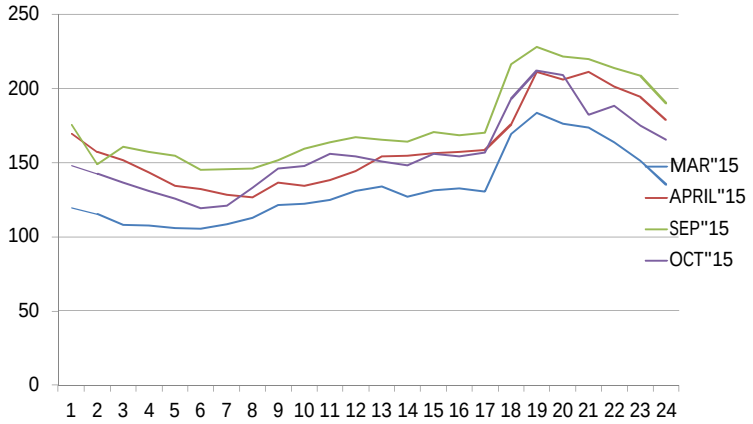
DHARAMPUR SUB-STATION



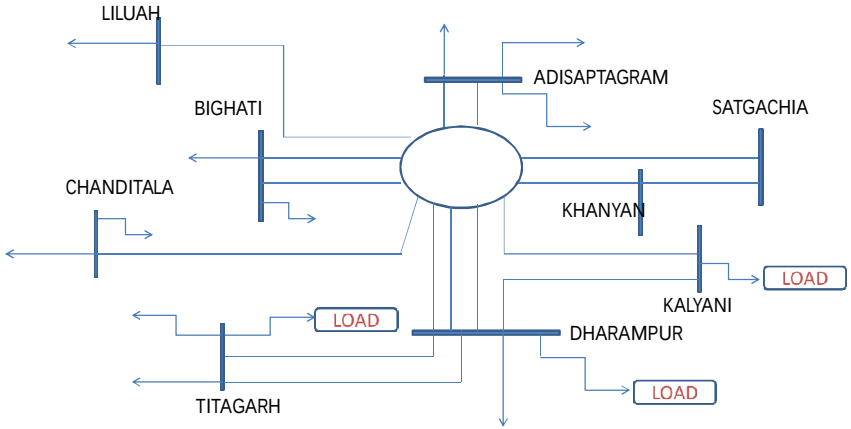
KALYANI SUB-STATION



TOTAL CONNECTED LOAD CONSIDERED FOR ISLANDING SCHEME for 9 MonthS (MArCH to noVEMBEr)



ISLANDING CoNNeCtIvIty DURING MARCH TO NOVEMBER



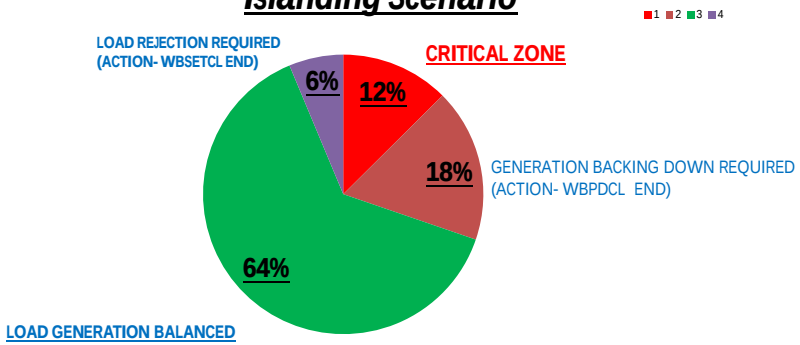
MAX= 228 MW *MIN= 106 MW*

Less Than 100 MW AND More Than 200 MW = 12 Blocks

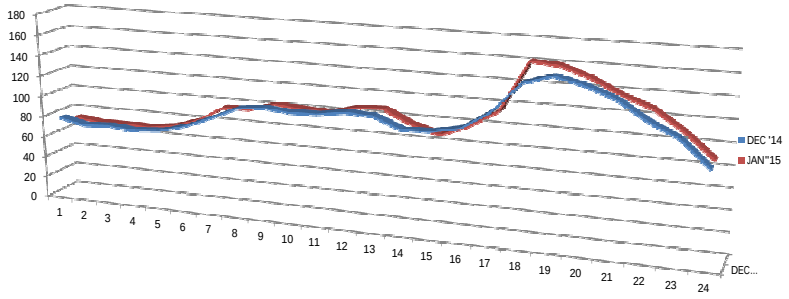
Between 100 to 130 MW = 17 Blocks *Between 180 to 200 MW = 6 Blocks*

Between 130 to 180 MW = 61 Blocks

Islanding Scenario



TOTAL AVAILABLE LOAD WITH EXISTING CONNCTIVITY fOr Remaining 3 months (DeCemBeR to FeBRUaRY)



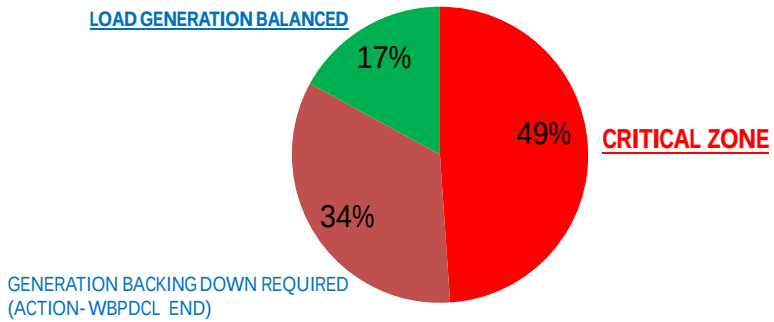
MAX= 160 MW *MIN= 69 MW*

Less Than 100 MW *AND* *More Than 200 MW = 24 Blocks*

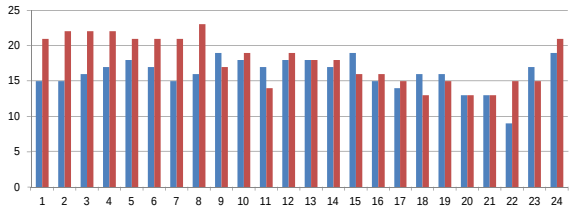
Between 100 to 130 MW = 16 Blocks *Between 180 to 200 MW = No Block*

Between 130 to 180 MW = 8 Blocks

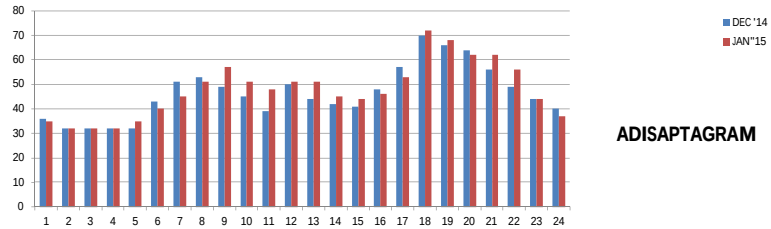
Possibility of islanding dURing dec – Feb



LOADS OF OTHER SUB-STATIONS TAKEN INTO CONSIDERATIO FOR THREE MONTHS IN ADDITION TO THE EXISTING ISLANDED LOAD

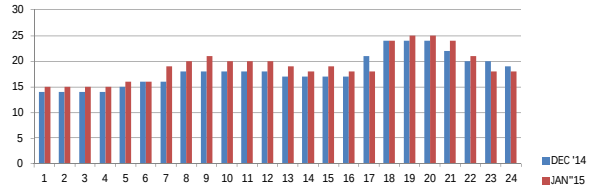


BIGHATI

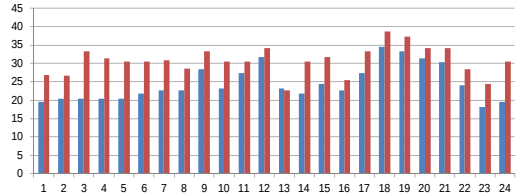


ADISAPTAGRAM

LOADS OF OTHER SUB-STATIONS TAKEN INTO CONSIDERATIO FOR THREE MONTHS IN ADDITION TO THE EXISTING ISLANDED LOAD

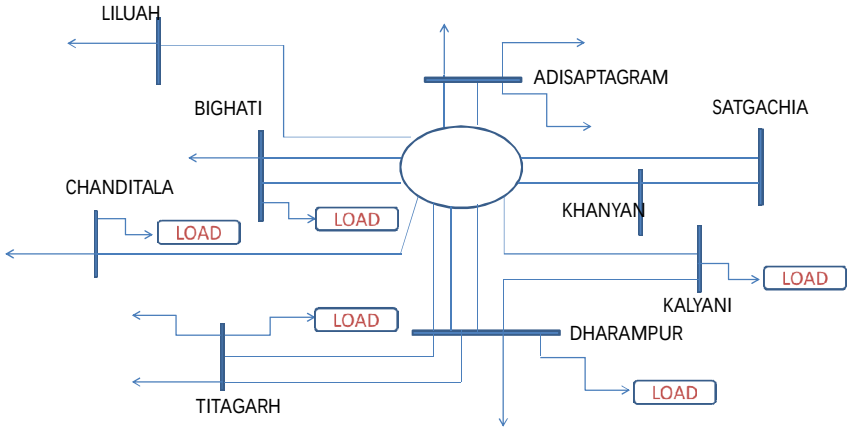


KHANYAN



CHANDITALA

ISLANDING CoNNeCtIvIty DURING MARCH TO NOVEMBER



INCLUDING CHANDITALA & BIGHATI (DURING WINTER ONLY)

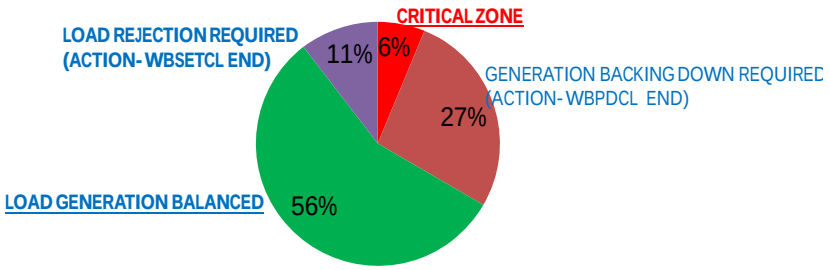
MAX= 212 MW *MIN= 108 MW*

Less Than 100 MW *AND* *More Than 200 MW = 3 Blocks*

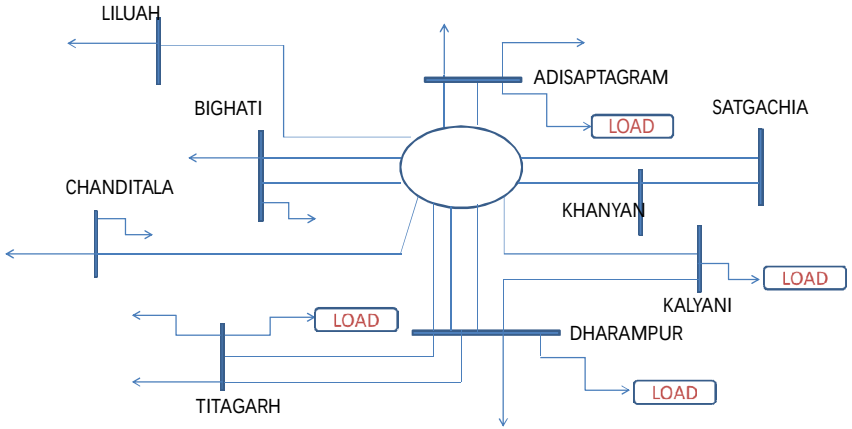
Between 100 to 130 MW = 13 Blocks *Between 180 to 200 MW = 5 Blocks*

Between 130 to 180 MW = 27 Blocks

Islanding Scenario



ISLANDING CoNNeCtIvIty DURING MARCH TO NOVEMBER



INCLUDING ADISAPTAGRAM (DURING WINTER ONLY)

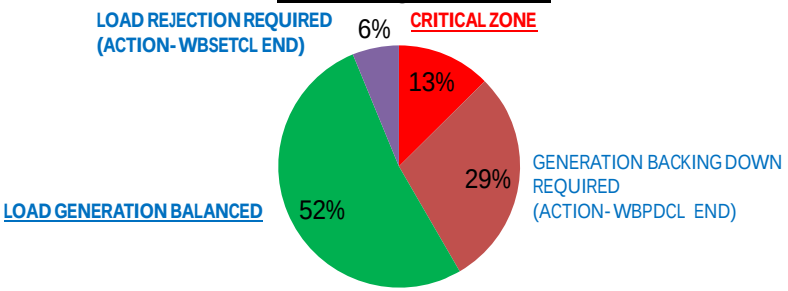
MAX= 232 MW *MIN= 101 MW*

Less Than 100 MW *AND* *More Than 200 MW = 6 Blocks*

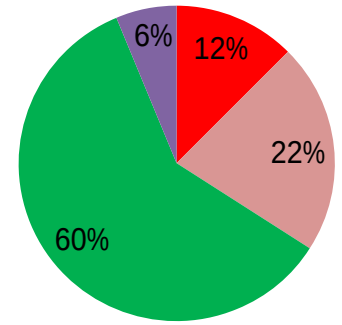
Between 100 to 130 MW = 14 Blocks *Between 180 to 200 MW = 3 Blocks*

Between 130 to 180 MW = 25 Blocks

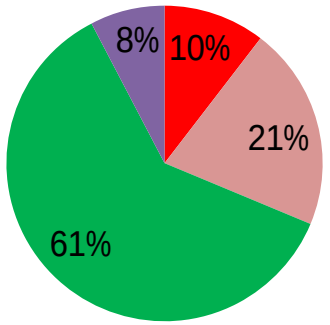
Islanding Scenario



OVER ALL POSSIBILITY OF SUCCESSFUL ISLANDING (THROUGH OUT THE YEAR)



WITH ADISAPTAGRAM DURING WINTER ONLY



WITH BIGHATI & CHANDITALA DURING WINTER ONLY

Annexure- B.12

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

पूर्वी क्षेत्र पारेषण प्रणाली-I मुख्यालय : अलंकार प्लेस (द्वितीय, पाँचवा व छठा तल), बोरिंग रोड, पटना-800 001
दूरभाष : 0612-2231071, 2233140, फैक्स : 0612-2228984
Eastern Region Transmission System-I H.Q.: Alankar Place (2nd, 5th & 6th Floor), Boring Road, Patna-800 001
Tel.: 0612 - 2231071, 2233140 Fax : 0612 - 2228984

Ref. No.: ER-I/PAT/AM(ER-I)/ **Date : 09.10.2015**

To

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

Sub: Tentative cost estimate for one time restoration of PLCC system of STUs Tie lines in Eastern Region-I.

Dear Sir,

This is with reference to the letter ref. no. ERPC/MS/2015 Dated 05.10.2015 regarding cost estimate for one time restoration of PLCC system of 220 KV tie lines of STUs whose PLCC are non operational for some or other reason. As communicated earlier, following tie lines of STUs have been identified whose PLCC system at STU end are non operational.

1) 220KV Ranchi-Chandil-I&II
2) 220 KV Ranchi-Hatia-I&II
3) 220 KV Patna-Fathua
4) 220 kv Patna-Khagaul
5) 220 kv Gaya-Bodhgaya-I&II
6) 220 KV Gaya-Dehri-I&II

Accordingly a tentative cost estimate has been prepared based on the survey report by POWERGRID engineer of respective STUs substation. The total tentative cost for one time restoration of PLCC of BSPTCL system comes to Rs 8197000/- and for JUSNL system comes to Rs 468400/-. Details of tentative cost estimate are attached as annexure-I&II. However, actual expenditure for one time restoration of PLCC system will be based on the actual procurement/ work done as per POWERGRID standard practice and visit of service engineer of respective OEM.

This is for your kind information and further necessary action please.

Thanking you.

Yours faithfully,

09/X/15

(S.K.Singh)
DGM (AM)/ER-I

Annexure-I

ESTIMATE FOR ONE TIME RESTORATION OF PLCC OF BSPTCL

S.NO.	ITEM DESCRIPTION	UNIT	QTY	AMOUNT	REMARKS
BODHGAYA AND DEHRI S/S					
1	Supply, Erection and commissioing of 220KV CVT alongwith support structure.	NO.	4	1500000	02 NOS-DEHRI AND 02 NOS-BODHGAYA
2	Supply, Erection and commissioing of Wave trap alongwith support structure and BPI.	NO.	4	2500000	02 NOS-DEHRI AND 02 NOS-BODHGAYA
3	Supply and laying of HF CABLE	KM	1	250000	FOR BOTH DEHRI AND BODHGAYA
4	Supply, laying and termination of CABLE (5CX2.5 SQ MM) BETWEEN RELAY PANEL TO PLCC	KM	1	300000	FOR BOTH DEHRI AND BODHGAYA
5	CLAMPS AND CONNECTOR FOR CVT AND WAVETRAP	NO.	8	150000	04 NOS. CVT AND 04 NOS- WT
6	JUMPER CONDUCTOR	NO.	8	150000	04 NOS. CVT AND 04 NOS- WT
7	DEPUTATION OF RELAY ENGINEER	DAYS	6	300000	03 DAYS EACH FOR DEHRI AND BODHGAYA
8	DEPUTATION OF PLCC ENGINEER	DAYS	6	300000	03 DAYS EACH FOR DEHRI AND BODHGAYA
9	CVT FOUNDATION	NO.	2	400000	01 NOS-DEHRI AND 01 NOS-BODHGAYA
10	MISCELLANEOUS	LS		150000	
SUB TOTAL(A)				**6000000**	
KHAGAUL AND FATHUA S/S					
1	Supply, installation and commissioning of LMU	NO.	2	500000	01 NO.-KHAGAUL AND 01 NO. -FATHUA
2	DEPUTATION OF SERVICE ENGINEER	LS		300000	02 days for kahgaul and 02 days for fathua
3	REPAIR OF PLCC CARDS	LS		100000	
4	MISCELLANEOUS	LS		100000	
SUB TOTAL(B)				**1000000**	
SUB TOTAL (A+B)				**7000000**	
POWERGRID CONSULTANCY FEE@15%				**1050000**	
SERVICE TAX ON CONSULTANCY FEE				**147000**	
TOTAL EXCLUDING TAXES AND DUTIES OF EACH ITEM				**8197000**	

Annexure-II

ESTIMATE FOR ONE TIME RESTORATION OF PLCC OF JSUNL

S.NO.	ITEM DESCRIPTION	UNIT	QTY	AMOUNT	REMARKS
CHANDIL AND HATIA S/S					
1	Deputation of service engineer for PLCC	DAYS	6	300000	02 DAYS-HATIA AND 02 DAYS-CHANDIL
2	Miscellaneous	LS		100000	
SUB TOTAL				400000	
POWERGRID CONSULTANCY FEE@15%				60000	
SERVICE TAX ON CONSULTANCY FEE				8400	
TOTAL EXCLUDING TAXES AND DUTIES OF EACH ITEM				468400	

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

J-1-15, Block- EP, Sector-V, Salt Lake City, Kolkata – 700 091.
Tel. (033) 2357-2822, (033) 2357-2822 (Fax)

Ref : ER-II/KOL/AM/2015 **Date: 15.10.2015**

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

Sub: Tentative cost estimate for one time restoration of PLCC system of STUs Tie Lines in Eastern Region-II.

Dear Sir,

This has reference to the letter ref. no. ERPC/MS/2015 Dated 05.10.2015 regarding cost estimate for one time restoration of PLCC system of the tie lines of STUs, for which PLCC are non-operational/ not available for some or other reason.

The following tie lines of the STU systems were identified

WBSETCL System:

1. 132KV Siliguri-NBU line.
2. 132KV Siliguri-NJP line.
3. 132KV Siliguri-Karsiang line.
4. 132KV Malda-Malda D/C line.
5. 132KV Birpara-Birpara D/C line.

Sikkim System:

1. 132KV Siliguri-Meli line.

Accordingly, a tentative cost estimate has been prepared based on the survey report of POWERGRID engineer of respective STU station. The total tentative cost for one time restoration of PLCC of WBSETCL system comes to Rs. 2,91,50,141.00 and for Sikkim syetm comes to Rs. 57,41,469.00. Details of tentative cost estimate are attached as Annex-I & II. However, actual expenditure for one time restoration of PLCC system will be based on the actual procurement/ work done as per POWERGRID standard practice and visit of service engineer of respective OEM.

This is for your kind information and further necessary action please.

Thanking you.

Yours faithfully

Jiten Das 15/10/15
Asst.GM (AM)

Annexure - 1

ESTIMATE FOR ONE TIME RESTORATION OF PLCC OF WBSETCL

Sl No.	Items Description	Unit	Qty.	Amount	Remarks
A.	**132KV SILIGURI NBU LINE**				
1	Supply , Erection and Commissioning of PLCC Pane	NO	4	1411986.00	
2	Supply, Erection and Commissioining of 132KV CVT alongwith support structure	NO	2	470022.00	
3	Supply , Erection and Commissioning of Wave Trap support structure and BPI	NO	4	954504.00	
4	Supply and Erection of Coupling Device	No.	2	92241.00	
5	Supply and Laying of HF Cable	KM	2	271034.00	1km length SLG and 1km at NBU
6	Supply, Laying and termination of CABLE (14CX2.5Sqmm) between relay panel to PLCC	KM	1	336342.00	0.5 km length SLG and 0.5km at NBU
7	Clamps and Connector for Wave Trap & cvt	NO	6	112500.00	
8	Jumper Conductor	NO	6	112500.00	
9	Deputation of Relay Engineer	Days	6	300000.00	3days at SLG and 3 Days at NBU
10	Deputation of PLCC Engineer	Days	8	400000.00	4 Days at SLG and 4 Days at NBU
11	Supply, Erection and Commissioining of 48V Battery system	SET	1	123573.00	
12	Supply, erection and Commissioning of 48V Battery Charger	No.	1	363368.00	
13	CVT Foundation	Nos	2	200000.00	
14	Miscellaneous	LS		300000.00	
	Sub Total A			5448070.00	

B.	**132KV SILIGURI NJP LINE**				
1	Supply , Erection and Commissioning of PLCC Panel	NO	4	1411986.00	
2	Supply, Erection and Commissioining of 132KV CVT alongwith support structure	NO	2	470022.00	
3	Supply , Erection and Commissioning of Wave Trap support structure and BPI	NO	4	954504.00	
4	Supply and Erection of Coupling Device	No.	2	92241.00	
5	Supply and Laying of HF Cable	KM	2	271034.00	1km length SLG and 1km at NJP

6	Supply, Laying and termination of CABLE (14CX2.5Sqmm) between relay panel to PLCC	KM	1	336342.00	0.5 km length SLG and 0.5km at NJP
7	Clamps and Connector for Wave Trap & cvt	NO	6	112500.00	
8	Jumper Conductor	NO	6	112500.00	
9	Deputation of Relay Engineer	Days	6	300000.00	3days at SLG and 3 Days at NJP
10	Deputation of PLCC Engineer	Days	8	400000.00	4 Days at SLG and 4 Days at NJP
11	Supply, Erection and Commissioining of 48V Battery system	SET	1	123573.00	
12	Supply, erection and Commissioning of 48V Battery Charger	No.	1	363368.00	
13	CVT Foundation	Nos	2	200000.00	
14	Miscellaneous	LS		300000.00	
	Sub Total B			5448070.00	
C.	**132KV SILIGURI KERSIANG LINE**				
1	Supply , Erection and Commissioning of PLCC Panel	NO	4	1411986.00	
2	Supply, Erection and Commissioining of 132KV CVT alongwith support structure	NO	2	470022.00	
3	Supply , Erection and Commissioning of Wave Trap support structure and BPI	NO	4	954504.00	
4	Supply and Erection of Coupling Device	No.	2	92241.00	
5	Supply and Laying of HF Cable	KM	2	271034.00	1km length SLG and 1km at Kersiang
6	Supply, Laying and termination of CABLE (14CX2.5Sqmm) between relay panel to PLCC	KM	1	336342.00	0.5 km length SLG and 0.5km at Kersiang
7	Clamps and Connector for Wave Trap & cvt	NO	6	112500.00	
8	Jumper Conductor	NO	6	112500.00	
9	Deputation of Relay Engineer	Days	6	300000.00	3days at SLG and 3 Days at Kersiang
10	Deputation of PLCC Engineer	Days	8	400000.00	4 Days at SLG and 4 Days at Kersiang
11	Supply, Erection and Commissioining of 48V Battery system	SET	1	123573.00	
12	Supply, erection and Commissioning of 48V Battery Charger	No.	1	363368.00	
13	CVT Foundation	Nos	2	200000.00	
14	Miscellaneous	LS		300000.00	

	Sub Total C			5448070.00	
D.	**132KV MALDA-MALDA D/C LINE**				
1	Supply , Erection and Commissioning of PLCC Panel	NO	6	2256540.00	2 NO.PLCC PANEL WITH PROTECTION COUPLER AND 1 NO. PLCC WITH SPEECH AND DATA HAS BEEN CONSIDERED AT EACH STATION.
2	Supply, Erection and Commissioining of 132KV CVT alongwith support structure	NO	2	470022.00	
3	Supply , Erection and Commissioning of Wave Trap support structure and BPI	NO	4	954504.00	
4	Supply and Erection of Coupling Device	No.	2	92241.00	
5	Supply and Laying of HF Cable	KM	2	271034.00	1km length MALDA and 1km at MLD.
6	Supply, Laying and termination of CABLE (14CX2.5Sqmm) between relay panel to PLCC	KM	1	336342.00	0.5 km length MALDA and 0.5km at MLD.
7	Clamps and Connector for Wave Trap & cvt	NO	6	112500.00	
8	Jumper Conductor	NO	6	112500.00	
9	Deputation of Relay Engineer	Days	6	300000.00	3days at MALDAand 3 Days at MLD.
10	Deputation of PLCC Engineer	Days	8	400000.00	4 Days at MALDA and 4 Days at MLD.
11	Supply, Erection and Commissioining of 48V Battery system	SET	1	123573.00	
12	Supply, erection and Commissioning of 48V Battery Charger	No.	1	363368.00	
13	CVT Foundation	Nos	2	200000.00	
14	Miscellaneous	LS		300000.00	
	Sub Total D.			6292624.00	
E.	**132KV BIRPARA-BIRPARA D/C LINE**				
1	Supply , Erection and Commissioning of PLCC Panel	NO	6	2256540.00	2 NO.PLCC PANEL WITH PROTECTION COUPLER AND 1 NO. PLCC WITH SPEECH AND DATA HAS BEEN CONSIDERED AT EACH STATION.
2	Supply, Erection and Commissioining of 132KV CVT alongwith support structure	NO	2	470022.00	
3	Supply , Erection and Commissioning of Wave Trap support structure and BPI	NO	4	954504.00	
4	Supply and Erection of Coupling Device	No.	2	92241.00	

5	Supply and Laying of HF Cable	KM	2	271034.00	1km length BIRPARA and 1km at BRP.
6	Supply, Laying and termination of CABLE (14CX2.5Sqmm) between relay panel to PLCC	KM	1	336342.00	0.5 km length BIRPARA and 0.5km at BRP.
7	Clamps and Connector for Wave Trap & cvt	NO	6	112500.00	
8	Jumper Conductor	NO	6	112500.00	
9	Deputation of Relay Engineer	Days	6	300000.00	3days at BIRPARAand 3 Days at BRP.
10	Deputation of PLCC Engineer	Days	8	400000.00	4 Days at BIRPARA and 4 Days at BRP
11	Supply, Erection and Commissioining of 48V Battery system	SET	1	123573.00	
12	Supply, erection and Commissioning of 48V Battery Charger	No.	1	363368.00	
13	CVT Foundation	Nos	2	200000.00	
14	Miscellaneous	LS		300000.00	
Sub Total E.				6292624.00	
Sub Total (A+B+C+D+E)				24893374.00	
POWERGRID CONSULTANCY FEE @ 15%				3734006.10	
SERVICE TAX ON CONSULTANCY FEE @ 14%				522760.85	
TOTAL EXCLUDING TAXES AND DUTIES OF EACH ITEM				29150140.95	

Annexe - II

ESTIMATE FOR ONE TIME RESTORATION OF PLCC PANEL OF SIKKIM

Sl No.	Items Description	Unit	Qty.	Amount	Remarks
1	Supply , Erection and Commissioning of PLCC Pane	NO	4	1411986.00	The protection panels available are old and obsolete. 1 no. PLCC panel with Speech+ data & 1 no. PLCC panel with Speech+ Data+ Protection coupler has been considered each at Siliguri & Meli.
2	Supply , Erection and Commissioning of Wave Trap support structure and BPI	NO	4	1154504.00	
3	Supply and Erection of Coupling Device	No.	2	92241.00	
4	Supply and Laying of HF Cable	KM	2	271034.00	1km length SLG and 1km at Melli
5	Supply, Laying and termination of CABLE (14CXE.55qmm) between relay panel to PLCC	KM	1	330342.00	0.3 km length SLG and 0.3km at Melli
6	Clamps and Connector for Wave Trap	NO	4	75000.00	
7	Jumper Conductor	NO	4	75000.00	
8	Deputation of Relay Engineer	Days	6	300000.00	3days at SLG and 3 Days at Melli
9	Deputation of PLCC Engineer	Days	8	400000.00	4 Days at SLG and 4 Days at Melli
10	Supply, Erection and Commissioining of 48V Battery system	SET	1	123573.00	
11	Supply, erection and Commissioning of 48V Battery Charger	No.	1	363368.00	
12	Miscellaneous	LS		300000.00	
Total				4903048.00	
POWERGRID CONSULTANCY FEE@15%				735457.2	
Service Tax on Consultancy Fee@14%				102964.008	
Total Excluding Taxes and Duties of Each Item				5741469.21	

पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise) पावरग्रिड
27, शहीद नगर, भुवनेश्वर (ओडिशा)-751007
दुरभाष: (0674) 2548586, 2548174, फैक्स: 2548586
27, Saheed Nagar, Bhubaneswar (Odisha)-751007
Tel: (0674) 2548586, 2548174, Fax: 2548586

Ref : ER-II/ODP/AM/2015 **Date: 06.11.2015**

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

Sub: Tentative cost estimate for one time restoration of PLCC system of STUs Tie Lines in Odisha.

Dear Sir,
This has reference to the letter ref. no. ERPC/MS/2015 Dated 05.10.2015 regarding cost estimate for one time restoration of PLCC system of the tie lines of STUs, for which PLCC are non-operational/ not available for some or other reason.

The following lines of the STU systems (OPTCL) were identified:
1) 400KV Indravati(PG)-Indravati(OHPC) Line.
2) 220KV Jeypore(PG)-Jaynagar(OPTCL) D/C line.
3) 220KV Rengali(PG)-Rengali(OPTCL) D/C Line.
4) 220KV Rourkela(PG)- Tarkera(OPTCL) D/C line.
5) 132KV Baripada(PG)- Rairangpur(OPTCL) S/C line.
6) 132KV Baripada(PG)- Baripada(OPTCL) S/C line.

Accordingly, a tentative cost estimate has been prepared based on the survey report of POWERGRID engineer on PLCC of respective OPTCL lines. The total tentative cost for one time restoration of PLCC of OPTCL system comes to Rs.6,23,86,512.00. Details of tentative cost estimate are attached as Annex-I. However, actual expenditure for one time restoration of PLCC system will be based on the actual procurement/ work done as per POWERGRID standard practice and visit of service engineer of respective OEM.

This is for your kind information and further necessary action please.

Thanking you.

Yours faithfully

06/11/15
(A.K.Behera)
DGM (AM)

Encl : As above.

Annexure-I

ESTIMATE FOR ONE TIME RESTORATION OF PLCC OF OPTCL LINES CONNECTING POWERGRID S/S

SUMMARY

SL.NO.	NAME OF LINE	COST ESTIMATE (Rs.)
A	400KV INDRAVATI(PG) - INDRAVATI(OHPC) S/C LINE	7732249.00
B	220KV JEYPORE(PG) - JAYNAGAR(OPTCL) D/C LINE	10898188.00
C	220KV RENGALI(PG) - RENGALI(OPTCL) D/C LINE	11958591.00
D	220 KV ROURKELA(PG) - TARKERA(OPTCL) D/C LINE	10850453.50
E	132KV BARIPADA(PG)- RAIRANGPUR(OPTCL) S/C LINE	5918394.00
F	132KV BARIPADA(PG) - BARIPADA(OPTCL) S/C LINE	5918394.00
	TOTAL :	**53276269.50**
	POWERGRID Consultancy fee @15 % :	7991440.43
	Service tax on Consultancy fee @ 14 % :	1118801.66
	Grand Total Excluding taxes & duties of each item :	**62386511.58**

05/11/15
(S.K. Naik)
Ch. Mgr (AM)
Bhubaneswar.

ESTIMATE FOR ONE TIME RESTORATION OF PLCC OF OPTCL LINES CONNECTING POWERGRID S/S

Sl No.	Items Description	Unit	Qty.	Unit Rate	Amount	Remarks
A.	400KV INDRAVATI(PG) - INDRAVATI(OHPC) S/C LINE					
1	Supply , Erection and Commissioning of PLCC Panel.	NO	6	352996.5	2117979.00	2 NO.PLCC PANEL WITH PROTECTION COUPLER AND 1 NO. PLCC WITH SPEECH AND DATA HAS BEEN CONSIDERED AT EACH STATION.
2	Supply, Erection and Commissioining of 420KV CVT	NO	4	376253	1505012.00	2 NOS CVT AT EACH STATION FOR PHASE TO PHASE COUPLING.
3	Supply , Erection and Commissioning of 420KV Wave Trap	NO	4	268735	1074940.00	2 NOS WAVE TRAP AT EACH STATION FOR PHASE TO PHASE COUPLING.
4	Supply and Erection of Coupling Device	No.	4	92241	368964.00	2 NOS AT EACH STATION
5	Supply and Laying of HF Cable	KM	4	135517	542068.00	1km length at PG end and 3km at OHPC end
6	Supply, Laying and termination of CABLE (14CX2.55qmm) between relay panel to PLCC	KM	1	336345	336345.00	0.5 km length PG end and 0.5km at OHPC end.
7	Clamps and Connector for Wave Trap & CVT	NO	8	18750	150000.00	
8	Jumper Conductor	NO	8	18750	150000.00	
9	Deputation of Relay Engineer	Days	6	50000	300000.00	3days at PG and 3 Days at OHPC end
10	Deputation of PLCC Engineer	Days	8	50000	400000.00	4 Days at PG end and 4 Days at OHPC end
11	Supply, Erection and Commissioining of 48V Battery system	SET	1	123573	123573.00	
12	Supply, erection and Commissioning of 48V Battery Charger	No.	1	363368	363368.00	
13	Miscellaneous (EARTHING FLAT, NUT BOLTS ETC)	LS		300000	300000.00	
	Sub Total (A) :				7732249.00	

ESTIMATE FOR ONE TIME RESTORATION OF PLCC OF OPTCL LINES CONNECTING POWERGRID S/S

Sl No.	Items Description	Unit	Qty.	Unit Rate	Amount	Remarks
B.	220KV JEYPORE(PG) - JAYNAGAR(OPTCL) D/C LINE					
1	Supply , Erection and Commissioning of PLCC Panel.	NO	6	352996.5	2117979.00	2 NO.PLCC PANEL WITH PROTECTION COUPLER AND 1 NO. PLCC WITH SPEECH AND DATA HAS BEEN CONSIDERED AT EACH STATION.
2	Supply, Erection and Commissioining of 245KV CVT.	NO	8	283152	2265216.00	4 NOS CVT AT EACH STATION FOR PHASE TO PHASE COUPLING.
3	Supply , Erection and Commissioning of Wave Trap	NO	8	231717	1853736.00	4 NOS WAVE TRAP AT EACH STATION FOR PHASE TO PHASE COUPLING.
4	Supply and Erection of Coupling Device	No.	8	92241	737928.00	4 NOS AT EACH STATION
5	Supply and Laying of HF Cable	KM	6	135517	813102.00	2km length PG end and 4km at JAYNAGAR end
6	Supply, Laying and termination of CABLE (14CX2.5Sqmm) between relay panel to PLCC	KM	1	336345	336345.00	0.5 km length PG end and 0.5km at JAYNAGAR
7	Clamps and Connector for Wave Trap & CVT	NO	16	18750	300000.00	
8	Jumper Conductor	NO	16	18750	300000.00	
9	Deputation of Relay Engineer	Days	8	50000	400000.00	4days at PG end and 4 Days at JAYNAGAR
10	Deputation of PLCC Engineer	Days	10	50000	500000.00	5 Days at PG end and 5 Days at JAYNAGAR
11	Supply, Erection and Commissioning of 48V Battery system	SET	2	123573	247146.00	
12	Supply, erection and Commissioning of 48V Battery Charger	No.	2	363368	726736.00	
13	Miscellaneous (EARTHING FLAT, NUT BOLTS ETC)	LS		300000	300000.00	
	Sub Total (B) :				10898188.00	

ESTIMATE FOR ONE TIME RESTORATION OF PLCC OF OPTCL LINES CONNECTING POWERGRID S/S

Sl No.	Items Description	Unit	Qty.	Unit Rate	Amount	Remarks
C.	220KV RENGALI(PG) - RENGALI(OPTCL) D/C LINE					
1	Supply , Erection and Commissioning of PLCC Panel.	NO	6	352996.5	2117979.00	2 NO.PLCC PANEL WITH PROTECTION COUPLER AND 1 NO. PLCC WITH SPEECH AND DATA HAS BEEN CONSIDERED AT EACH STATION.
2	Supply, Erection and Commissioining of 245KV CVT alongwith support structure.	NO	8	300464	2403712.00	4 NOS CVT AT EACH STATION FOR PHASE TO PHASE COUPLING.
3	Supply , Erection and Commissioning of Wave Trap, support structure and BPI	NO	8	263895	2111160.00	4 NOS WAVE TRAP AT EACH STATION FOR PHASE TO PHASE COUPLING.
4	Supply and Erection of Coupling Device	NO	8	92241	737928.00	4 NOS AT EACH STATION
5	Supply and Laying of HF Cable	KM	5	135517	677585.00	2km length PG and 3km at OPTCL end
6	Supply, Laying and termination of CABLE (14CX2.5Sqmm) between relay panel to PLCC	KM	1	336345	336345.00	0.5 km length PG and 0.5km at OPTCL end.
7	Clamps and Connector for Wave Trap & CVT	NO	16	18750	300000.00	
8	Jumper Conductor	NO	16	18750	300000.00	
9	Deputation of Relay Engineer	Days	8	50000	400000.00	4days at PG and 4 Days at OPTCL
10	Deputation of PLCC Engineer	Days	10	50000	500000.00	5 Days at PG and 5 Days at OPTCL
11	Supply, Erection and Commissioining of 48V Battery system	SET	2	123573	247146.00	
12	Supply, erection and Commissioning of 48V Battery Charger	No.	2	363368	726736.00	
13	CVT Foundation	Nos	8	100000	800000.00	
14	Miscellaneous (EARTHING FLAT, NUT BOLTS ETC)	LS		300000	300000.00	
	Sub Total (C) :				11958591.00	

ESTIMATE FOR ONE TIME RESTORATION OF PLCC OF OPTCL LINES CONNECTING POWERGRID S/S

Sl No.	Items Description	Unit	Qty.	Unit Rate	Amount	Remarks
D.	220 KV ROURKELA(PG) - TARKERA(OPTCL) D/C LINE					
1	Supply , Erection and Commissioning of PLCC Panel (single channel)	NO	6	352996.5	2117979.00	2 NO.PLCC PANEL WITH PROTECTION COUPLER AND 1 NO. PLCC WITH SPEECH AND DATA HAS BEEN CONSIDERED AT EACH STATION.
2	Supply, Erection and Commissioining of 245KV CVT	NO	8	283152	2265216.00	4 NOS CVT AT EACH STATION FOR PHASE TO PHASE COUPLING.
3	Supply , Erection and Commissioning of Wave Trap	NO	8	231717	1853736.00	4 NOS WAVE TRAP AT EACH STATION FOR PHASE TO PHASE COUPLING.
4	Supply and Erection of Coupling Device	No.	8	92241	737928.00	4 NOS AT EACH STATION
5	Supply and Laying of HF Cable	KM	8	135517	1084136.00	4km length RKL and 4km at Tarkera end
6	Supply, Laying and termination of CABLE (14CX2.5Sqmm) between relay panel to PLCC	KM	1.5	336345	504517.50	0.5 km length RKL and 1 km at Tarkera
7	Clamps and Connector for Wave Trap & CVT	SET	16	18750	300000.00	
8	Jumper Conductor	NO	16	18750	300000.00	
9	Deputation of Relay Engineer	Days	8	50000	400000.00	4days at RKL and 4 Days at Tarkera
10	Deputation of PLCC Engineer	Days	10	50000	500000.00	5 Days at RKL and 5 Days at Tarkera
11	Supply, Erection and Commissioining of 48V Battery system	SET	1	123573	123573.00	
12	Supply, Erection and Commissioning of 48V Battery Charger	No.	1	363360	363360.00	
13	Miscellaneous (EARTHING FLAT, NUT BOLTS ETC)	LS		300000	300000.00	
Sub Total (D) :					10850453.50	

ESTIMATE FOR ONE TIME RESTORATION OF PLCC OF OPTCL LINES CONNECTING POWERGRID S/S

Sl No.	Items Description	Unit	Qty.	Unit Rate	Amount	Remarks
E.	132KV BARIPADA(PG)- RAIRANGPUR(OPTCL) S/C LINE					
1	Supply , Erection and Commissioning of PLCC Panel	NO	4	352996.5	1411986.00	1 NO.PLCC PANEL WITH PROTECTION COUPLER AND 1 NO. PLCC WITH SPEECH AND DATA HAS BEEN CONSIDERED AT EACH STATION.
2	Supply, Erection and Commissioining of 245KV CVT alongwith support structure	NO	4	235011	940044.00	2 NOS CVT AT EACH STATION FOR PHASE TO PHASE COUPLING.
3	Supply , Erection and Commissioning of Wave Trap support structure and BPI	NO	4	238626	954504.00	2 NOS WAVE TRAP AT EACH STATION FOR PHASE TO PHASE COUPLING.
4	Supply and Erection of Coupling Device	No.	4	92241	368964.00	2 NOS AT EACH STATION
5	Supply and Laying of HF Cable	KM	3	135517	406551.00	1km length BARIPADA and 2km at RAIRANGPUR.
6	Supply, Laying and termination of CABLE (14CX2.5Sqmm) between relay panel to PLCC	KM	1	336345	336345.00	0.5 km length BARIPADA and 0.5km at RAIRANGPUR.
7	Clamps and Connector for Wave Trap & CVT	SET	8	18750	150000.00	
8	Jumper Conductor	NO	8	18750	150000.00	
9	Deputation of Relay Engineer	Days	8	50000	400000.00	4 Days at BARIPADA and 4Days at BALASORE.
10	Deputation of PLCC Engineer	Days	10	50000	500000.00	5 Days at BARIPADA and 5 Days at BALASORE.
11	Miscellaneous	LS		300000	300000.00	
	Total (F) :				5918394.00	

P-7 of 7

ESTIMATE FOR ONE TIME RESTORATION OF PLCC OF OPTCL LINES CONNECTING POWERGRID S/S

Sl No.	Items Description	Unit	Qty.	Unit Rate	Amount	Remarks
F.	132KV BARIPADA(PG) - BARIPADA(OPTCL) S/C LINE					
1	Supply , Erection and Commissioning of PLCC Panel.	NO	4	352996.5	1411986.00	1 NO.PLCC PANEL WITH PROTECTION COUPLER AND 1 NO. PLCC WITH SPEECH AND DATA HAS BEEN CONSIDERED AT EACH STATION.
2	Supply, Erection and Commissioning of 245KV CVT alongwith support structure	NO	4	235011	940044.00	2 NOS CVT AT EACH STATION FOR PHASE TO PHASE COUPLING.
3	Supply , Erection and Commissioning of Wave Trap support structure and BPL	NO	4	238626	954504.00	2 NOS WAVE TRAP AT EACH STATION FOR PHASE TO PHASE COUPLING.
4	Supply and Erection of Coupling Device	No.	4	92241	368964.00	2 NOS AT EACH STATION
5	Supply and Laying of HF Cable	KM	3	135517	406551.00	1km length at PG end and 2km at OPTCL end.
6	Supply, Laying and termination of CABLE (14CX2.5Sqmm) between relay panel to PLCC	KM	1	336345	336345.00	0.5 km length at PG end and 0.5km at OPTCL end.
7	Clamps and Connector for Wave Trap & CVT	SET	8	18750	150000.00	
8	Jumper Conductor	NO	8	18750	150000.00	
9	Deputation of Relay Engineer	Days	8	50000	400000.00	4 Days at PG end and 4Days at OPTCL end.
10	Deputation of PLCC Engineer	Days	10	50000	500000.00	5 Days at PG end and 5 Days at OPTCL end.
11	Miscellaneous	LS		300000	300000.00	
	Total (G) :				5918394.00	

ODISHA POWER TRANSMISSION CORPORATION LIMITED,
OFFICE OF THE Sr.GENERAL MANAGER, TELECOMMUNICATION CIRCLE,
TECHNICAL BUILDING, JANAPATH, BHUBANESWAR-751022.
PH: (0674) 2542403, FAX:2540875 WEBSITE: telc.cle.bbs@optcl.co.in
CIN-U401020R2004SGC007553

No. TCC- Tech- 169(Pt) / 1939(3) Date: 15.12.15

From:
The Sr. General Manager,
Telecommunication Circle,
OPTCL, Bhubaneswar
To
The Chief General Manager(O&M),
OPTCL, Bhubaneswar

Sub: Tentative cost estimate for restoration of Speech and Data Communication

Ref: Letter No.ER-II/ODP/AM/2015 Dated.06.11.2015 of DGM(AM), PGCIL, Bhubaneswar

Sir,

Please find enclosed herewith a copy of the letter under reference on the subject cited above regarding restoration of communication in the following links using PLCC.

1) 400KV Indravati(PG)-Indravati(OHPC) line
2) 220KV Jeypore(PG)-Jayanagar(OPTCL) DC line
3) 220KV Rengali(PG)-Rengali(OPTCL) DC line
4) 220KV Rourkela(PG)-Tarkera(OPTCL) DC line
5) 132KV Baripada(PG)-Rairangpur(OPTCL) SC line
6) 132KV Baripada(PG)-Baripada(OPTCL) SC line

In this regard, it is to state that,

1) The OPGW connectivity along with optical line terminal equipments are existing in 220KV Jeypore(PG)-Jayanagar(OPTCL) & 220KV Rourkela(PG)-Tarkera(OPTCL) links and are in operation,
2) Provision for OPGW connectivity to the links 132KV Baripada(PG)-Rairangpur(OPTCL) and 132KV Baripada(PG)-Baripada(OPTCL) have already been made in the project 'laying OPGW in important 132KV lines'
3) Now for 400KV Indravati(PG)-Indravati(OHPC) and 220KV Rengali(PG)-Rengali(OPTCL) links separate tentative estimate, BOQ, Schemes are prepared for OPGW based communication where estimated cost comes around Rs.2139530.00 each. Whereas the estimated cost framed vide the letter under reference for these two links using PLCC are Rs.7732249.00 and Rs.11958591.00

respectively, which is too high. A comparative statement indicating linkwise expenditure is as under.

Comparative Statement

Sl.No.	Name of the link	Expenditure in PLCC provision	Expenditure in OPGW provision
1	400KV Indravati(PG)-Indravati (OHPC)	Rs.7732249.00	Rs.2139530.00
2	220KV Rengali(PH)-Rengali (OPTCL)	Rs.11958591.00	Rs.2139530.00
	Total:	**Rs.19690840.00 (Rupees one crore ninety six lakhs ninety thousand eight hundred forty) only**	**Rs.4279060.00 (Rupees forty two lakhs seventy nine thousand sixty) only**

Hence, provision of PLCC is not advisable, rather as the OPGW connectivity has become fairly common in OPTCL network the same may be adopted and the enclosed Schemes may kindly be considered.

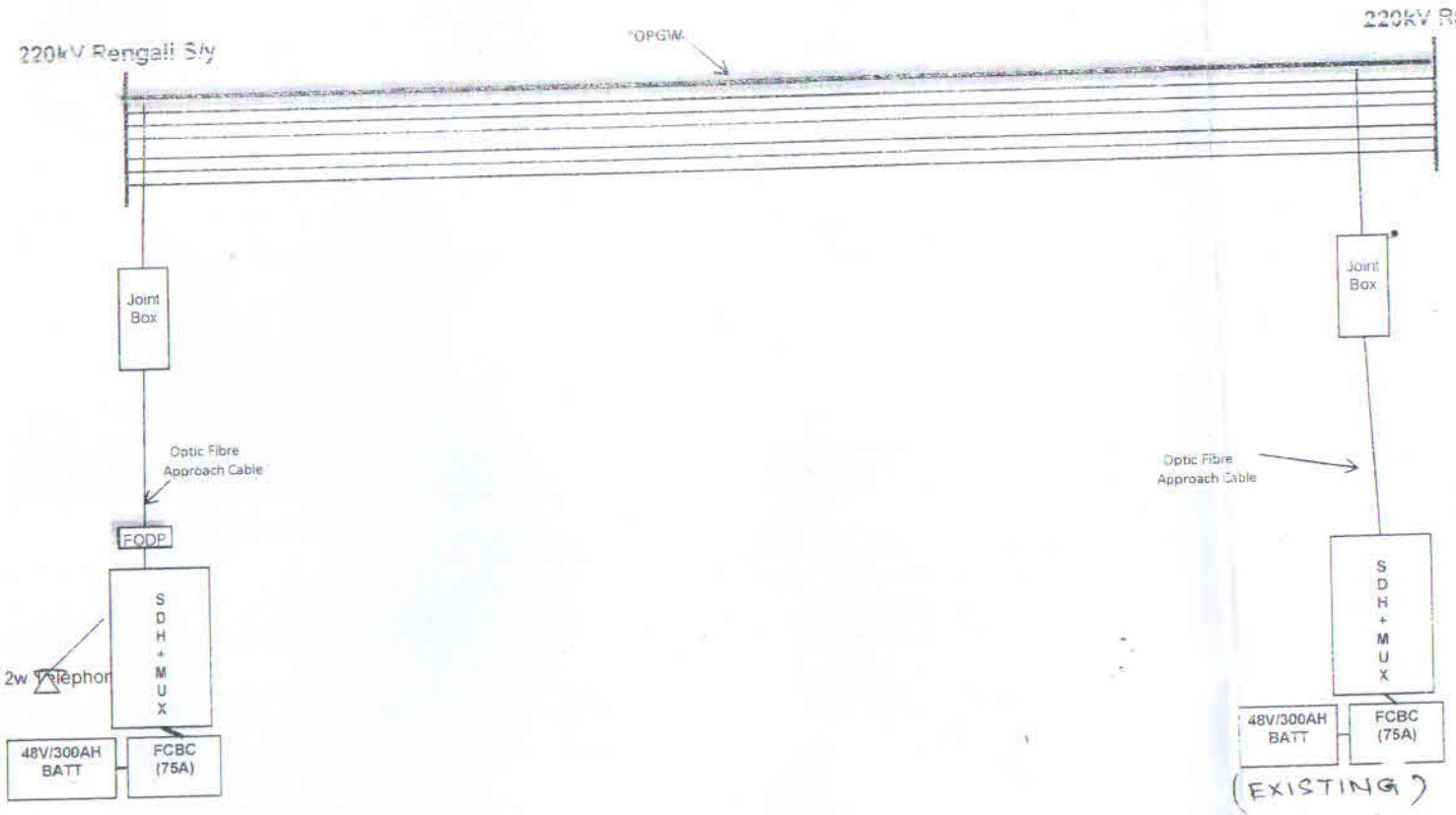
Yours faithfully

15/12/15

Sr. General Manager
Telecommunication

CC to: 1) Sr.G.M.(PS), SLDC, OPTCL, Bhubaneswar
2) Member, ERPC, Kolkata

SCHEMATIC LAYOUT FOR PROVISION OF SPEECH & DATA THROUGH OPGW APPLICABLE TO 220kV RENGALI PH- RENGALI S/Y



15/12/15
Sr. GENERAL MANAGER
TELECOMMUNICATION

APLY OF MATERIALS FOR SPEECH & DATA THROUGH OPGW APPLICABLE TO 220KV RENGALI PH-RENGALI S/Y

	DESCRIPTION OF EQUIPMENT	UNIT	Rengali PH	Rengali S/Y	TOTAL QTY	Unit Price in Rupees	ED(@ 12.5%	CST@2%	Entry @ 2%	F&I @5%	Unit landing cost	Total Price in Rupees
1	24Fibre(DWSM)OPGW fibre Optic Cable	Kmtr		5	5	168000.00	21000.00	3360.00	3360.00	8400.00	204120.00	1020600.00
2	OPGW hardware set like suspension Asembly,Tensin Assembly(Dead end assembly, Pass through assembly) Vibration Damper,Down Lead Clamp Assemblies for 24/48 Fibre(DWSM) OPGW,Joint Box					included in item no.1						0.00
3	24 Fibre Optic Approach cable along with HDPE Pipes	Kmtr	0.5	0.5	1	83950.00	10493.75	1679.00	1679.00	4197.50	101999.25	101999.25
4	Optical line Terminal Equipment(OLTE) -STM4 type SDH equipment with integrated MUX & tributary cards for speech & data ports for interfacing of Speech & data which should be compatible with existing OPTCL system	No		1	1	660000.00	82500.00	13200.00	13200.00	33000.00	801900.00	801900.00
											Total	**1924499.25**
											Say	**1924499.00**

(Rupees nineteen lakhs twenty four thousand & four hundred ninety nine only)

BILL OF ERECTION OF MATERIALS FOR SPEECH & DATA THROUGH OPGW APPLICABLE TO 220KV RENGAL IPH-RENGALI S/Y

SL No	DESCRIPTION OF EQUIPMENT	UNIT	Rengali PH	Rengali S/Y	TOTAL QTY	Unit Price in Rupees	Service tax @14.5%	Unit landing cost	Total Price in Rupees
1	Erection of 24Fibre(DWSM)OPGW fibre Optic along with hardwaress and approach cables	Kmtr		5	5	33600.00	4872.00	38472.00	192360.00
2	Erection/comissioning of SDH/MUX along with termination with FODP	No		1	1	19800.00	2871.00	22671.00	22671.00
								Total	**215031.00**

(Rupees two lakhs fifteen thousand & thirty one only)

ABSTRACT OF BILL OF MATERIALS & BILL OF ERECTION

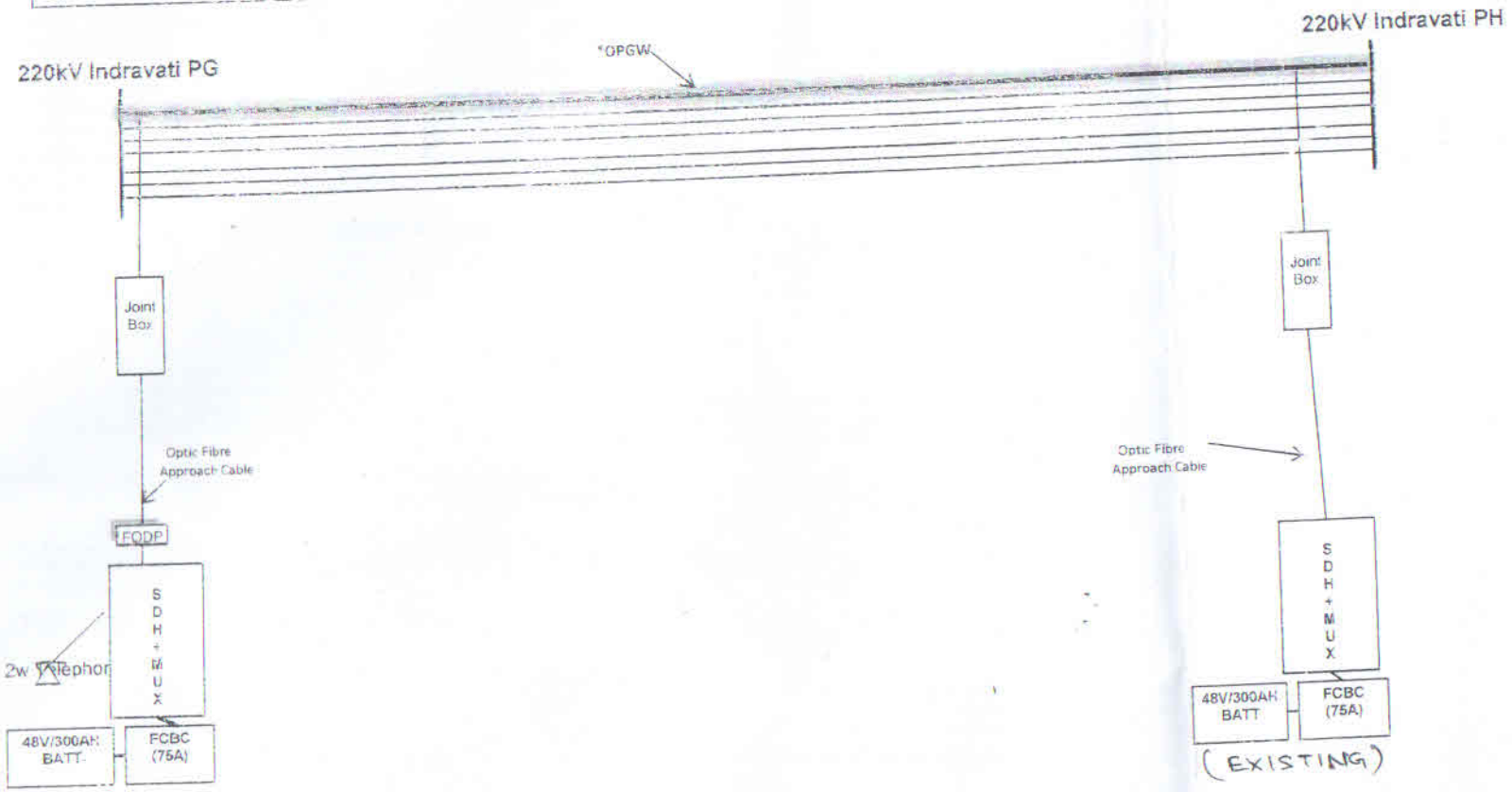
Description	Amount in Rupees
Bill of Supply of materials	1924499.00
Bill of erection of materials	215031.00
G.Total	**2139530.00**

(Rupees twenty one lakhs thirty nine thousand five hundred thirty only)

NB:
* The price is tentative. Actually expenditure will be based on procurement/work done as per standard practices of OPTCL and site survey conducted by the executor.

15/12/15
Sr. GENERAL MANAGER
TELECOMMUNICATION

SCHEMATIC LAYOUT FOR PROVISION OF SPEECH & DATA THROUGH OPGW APPLICABLE TO 220kV INDRAVATI PH-INDRAVATI PG



15/12/15

DY. GENERAL MANAGER
TELECOMMUNICATION

/PLY OF MATERIALS FOR SPEECH & DATA THROUGH OPGW APPLICABLE TO 220KV INDRAVATI PH-INDRAVATI PG

SL No	DESCRIPTION OF EQUIPMENT	UNIT	Indravati PH	Indravati PG	TOTAL QTY	Unit Price in Rupees	ED(@ 12.5%	CST@2%	Entry @ 2%	F&I @5%	Unit landing cost	Total Price in Rupees
1	24Fibre(DWSM)OPGW fibre Optic Cable	Kmtr		5	5	168000.00	21000.00	3360.00	3360.00	8400.00	204120.00	1020600.00
2	OPGW hardware set like suspension Asembly Tensin Assembly(Dead end assembly, Pass through assembly) Vibration Damper,Down Lead Clamp Assemblies for 24/48 Fibre(DWSM) OPGW,Joint Box					included in item no.1						0.00
3	24 Fibre Optic Approach cable along with HDPE Pipes	Kmtr	0.5	0.5	1	83950.00	10493.75	1679.00	1679.00	4197.50	101999.25	101999.25
4	Optical line Terminal Equipment(OLTE) -STM4 type SDH equipment with integrated MUX & tributary cards for speech & data ports for interfacing of Speech & data which should be compatible with existing OPTCL system	No		1	1	660000.00	82500.00	13200.00	13200.00	33000.00	801900.00	801900.00
											Total	**1924499.25**
											Say	**1924499.00**

(Rupees nineteen lakhs twenty four thousand & four hundred ninety nine only)

BILL OF ERECTION OF MATERIALS FOR SPEECH & DATA THROUGH OPGW APPLICABLE TO 220KV INDRAVATI PH-INDRAVTI PG

SL No	DESCRIPTION OF EQUIPMENT	UNIT	Indravati PH	Indravati PG	TOTAL QTY	Unit Price in Rupees	Service tax @14.5%	Unit landing cost	Total Price in Rupees
1	Erection of 24Fibre(DWSM)OPGW fibre Optic along with hardwaress and approach cables	Kmtr		5	5	33600.00	4872.00	38472.00	192360.00
2	Erection/comissioning of SDH/MUX along with termination with FODP	No		1	1	19800.00	2871.00	22671.00	22671.00
								Total	**215031.00**

(Rupees two lakhs fifteen thousand & thirty one only)

ABSTRACT OF BILL OF MATERIALS & BILL OF ERECTION

Description	Amount in Rupees
Bill of Supply of materials	1924499.00
Bill of erection of materials	215031.00
G.Total	**2139530.00**

(Rupees twenty one lakhs thirty nine thousand five hundred thirty only)

NB:
* The price is tentative. Actually expenditure will be based on procureme done as per standard practices of OPTCL and site survey conducted by the executor.

15/12/15
Sr GENERAL MANAGER
TELECOMMUNICATION

Restoration Procedure 2015

- Hydro stations of Bhutan & WBSEDCL that have DG sets but cannot run in islanded mode have been excluded from the list of plants with black-start capability.
- A few new / alternative restoration paths mentioned for DVVC/BSPGCL/JUUNL etc. these may be checked by respective utilities.
- Paths for extending start-up power to new plants like Barh STPS, IBEUL, Jorethang etc. added

- Railway feeder details, contract demands, connected phases, Nodal person etc. have not been changed. Railway authorities may kindly update the same
- Coal feeders and contract demands have not been updated ECL, CIL may please update.
- New islanding schemes viz CTPS, BkTPS, Tata Power etc. added.

Annexure- B.29

Latest status on non-availability of SCADA data

It was informed by ERLDC that some constituents are not updating single line diagram in SCADA as per actual real time network and same is causing lack of network visibility.

All constituents agreed to update SCADA single line diagram as per real network time to time and will furnished the same to ERLDC also.

The status as updated in the SCADA meeting is as given below:

i) List of additional elements/feeders whose data is not available – station under ULDC project:

SL no	Name of Utility	KV	Name of station	Reason for non reporting	Latest status
1	OPTCL	220	Vedanta (9x135 MW)	No status points are available.	No isolators status are available. MW/ MVAR not available for sterlite 1/2 line, station transformer / Smelter. CBs of Bus coupler not available. Bus-1 KV/ HZ not available. **Problem still not resolved**

ii) The List of RTU supplied under BSEB ULDC Project but data is faulty/ intermittent:

S/n	Name of RTU locations	Latest status	Remarks
1	Jakkanpur, Khagaul RTU, Dumraon, Karmnasha, Sitamarhi, , Purnea & Koshi	Data is reporting intermittently.	1) Data integrated through GPRS will be intermittent till Final communication packages is implemented (Already awarded to PGCIL for execution). 2) ALL RTU will be report to SLDC patna subject to availability of communication system (Already Awarded to PGCIL) 3) New RTU is being integrated with OSI systems and this RTU will report to ERLDC once ERLDC OSI system is ready. **Problem still not resolved**
2	Hathidah, Lakhisarai & Darbhanga	Data is reporting intermittently.. Due to re-conductoring work in Darbhanga-Samastipur T/L, Darbhanga is not reporting temporarily.	
3	BTPS	RTU dismantled. Renovation/overhauling work is going on. SAS is expected to be operational by the November, 2014.	
4	220 kV Hajipur	*Hajipur is temporarily down, BSPTCL working to restore it.*	
5	Jagdishpur, Sipara, Madhepura	RTU has been supplied by PGCIL under Sub-transmission project of Bihar but commissioning is left out. Now, it will be done in ULDC upgradation scheme.	
6	Siwan, Valmikinagar, Gopalganj, Kisanganj and Arrah	RTU along with communication has been included in the scope of work of Powergrid under up gradation/ replacement scheme of ULDC. It was scheduled to be completed by Oct'14. *RTU supplied by M/s. Chemtrols except Darbhanga. RTU reached site.*	

iii) The updated status of telemetry of JSEB Sub-Stations under ULDC project is as given below:

Sl. No.	Name of the RTU location	Latest status	Remarks
1	Ramchandrapur	Reporting is interrupted because of problem in PLCC link between Candil & Ramchandrapur. CVT brusted at Ramchandrapur bay and requires replacement. Arrangement in being done for its replacement.	1) RTU's CPU Card sent to Bhubaneswar for repairing . 2) All RTU will restored by Mid March 2015. **Problem still not resolved. None of real time data available since 15/06/15.**
2	Jamtara	Jamtara RTU has been shifted in new control room. POWER GRID has been requested to reintegrate the feeders in RTU as integration of additional feeder (new element) in the existing RTU. *Powergrid informed that Advance Payment towards new element integration is pending since long. After payment, M/s. ALSTOM will give the schedule of site visit for feeder integration.*	
3	Deoghar	Both LMU & LMDU rusted at Jamtara. Arrangement inbeing done for its replacement. Deoghar-Jamtara-Maithon link is interrupted also because of snatching of patching cable at Maithon (G) and Maithon (SLDC). This was found during survey of sites with M/s PUNCOM which will be corrected by the agency under AMC. AMC by PUNCOM has been started.	
4	Garawah	Garawah RTU will be restored when it will be connected from Ranchi end through Hatia-Loherdaga-Latehar-Daltonganj –Garwah Transmission lie.	
5	Kendposi	Reporting is interrupted because of shifting of Chandil bay at Rajkharsawan. PLCC outdoor equipment has been shifted recently to new location of Chandil bay at RKSN. Some work like termination of co-axial cable will be done soon.	
6	Goelkera		
7	Jadugoda	Co-axial cable faulty at Golmuri (Chandil bay)	

iv) The updated status of telemetry of OPTCL Sub-Stations under ULDC project is project as given below:

S/n	Name of RTU Locations	Latest status
1	Nalco	OPTCL informed that RTU is reporting but intermittent since it was not configured properly. The issue was already taken up with Nalco and it will be resolved soon. OPTCL has resolved the issue. Some Unit generation polarity will be resolved by Feb 2015. **Problem still not resolved**

v) **RTU telemetry provided but data are intermittent / new element not wired.**

SL No	Name of station/ Utility	Reason for non reporting	Latest status
I	Lalmatia JSEB	MW / MVAR/ OLTC tap of 220/132 KV ICT –II not available	MW/MVAR/OLTC tap of 220/132 KV ICT-II not available. Will be complete during additional feeder integration, no time frame. **Problem still not resolved**
II	JSPL (Meramundali - 400)	Most of the data not available .	OPTCL informed that they are taking matter with JSPL. **Problem still not resolved**
IV	DVC		
	Patherdiah,		RTU reached site. commissioned within Feb 2015. **(RTU Commissioned but not integrated with SLDC.)**
	Kalipahari		RTU reached site. **(RTU Commissioned but not integrated with SLDC.)**

vi) **Sub - Stations (220 & 132 kV) Telemetry not provided :**

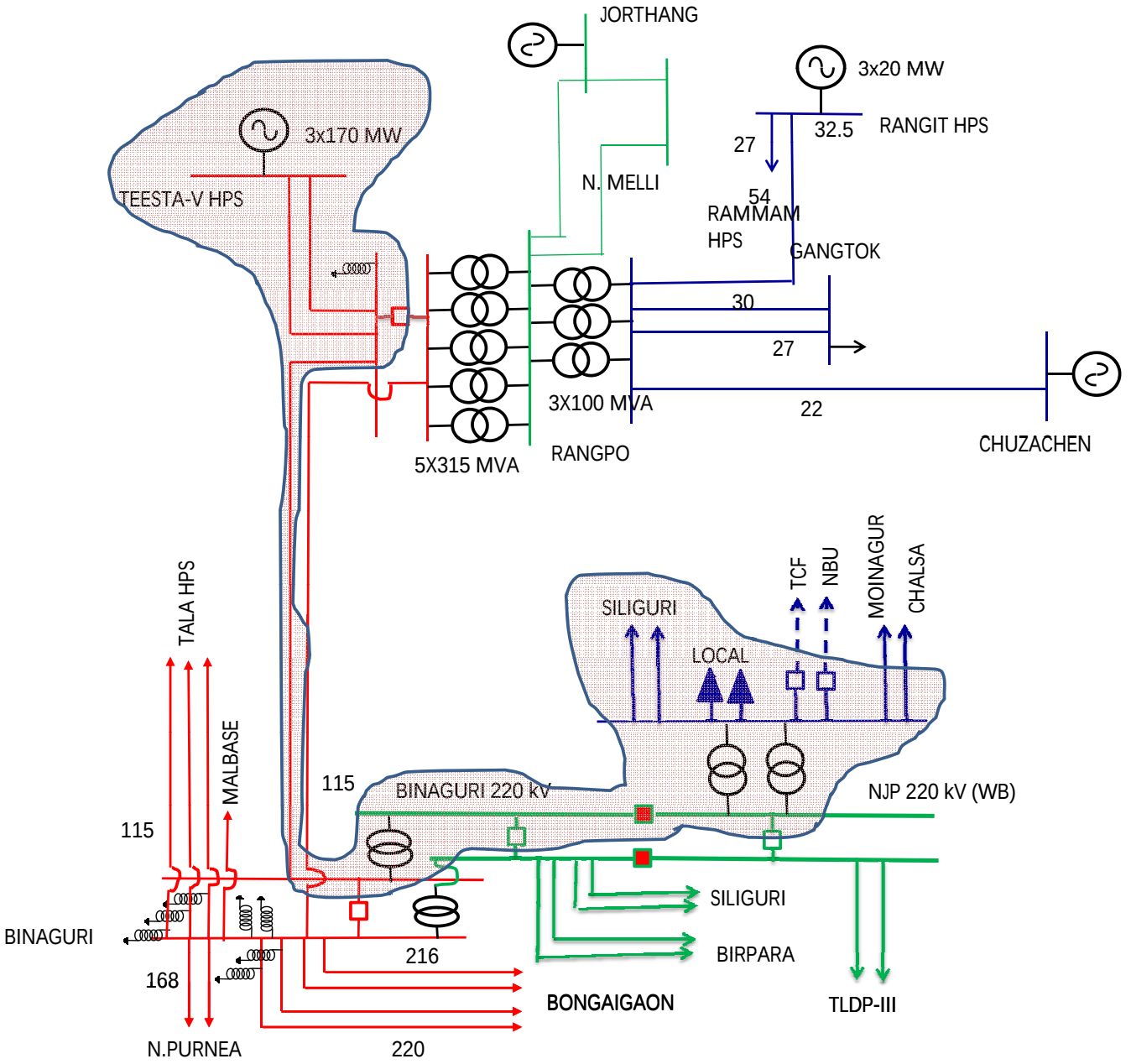
SL No	Name of station/ Utility	Reason for non reporting	Latest status
I	WBSETCL		
	Krishna Nagar	RTU not provided for data telemetry	RTU integrated .
	CESC S/s: EM 220 kV		CESC control centre ICCP will be integrated with WB's new OSI system by April 2015. **WBSETCL confirmed that same will available TO OSI system by 31st July 2015.**
	CESC : Kasba-132 kV, EM-132 kV Jadavpur, Chakmir, Majerhat and CESC Belur		
II	JSEB		
	Hatia New	**RTU not provided for data telemetry**	Hatia SAS to be integrated with SLDC. No time frame. By Feb 2015 all RTUs will be supplied. No commissioning time frame. **Problem still not resolved**
	Manique (Chandil)		
	Japla		By Feb 2015 all RTUs will be supplied. No commissioning time frame. **Problem still not resolved**

Unavailability Of Critical Real Time data :

Name of station/ Utility	Not reporting since	ERLDC Remarks
SEL	24/06/15	Status and CBs, SOE point of Old switch yard not available since 01/05/15. *Restoration work is in progress.*
APNRL	1/5/2015	*Work will start soon.*
Sasaram (765)	13/05/15	*Intermittent.*
GMR	Since Generation	None of Unit side data and protection signal available- *By November, 2015*
Sagardighi (400)	28/04/15	*Restoration work is in progress.*
Nabinagar (400)	28/12/14	*Restoration work is in progress.*
Behrampur (400)		*SAS hanging*

Annexure- B.29

JUSNL (JSEB): None of data is available	15/06/15	*7 out of 14 RTUs reporting to SLDC*


JORTHANG
3x20 MW
32.5
RANGIT HPS
27
54
RAMMAM
HPS
GANGTOK
3x170 MW
TEESTA-V HPS
N. MELLI
30
27
3X100 MVA
22
CHUZACHEN
5X315 MVA
RANGPO
TALA HPS
MALBASE
SILIGURI
TCF
NBU
MOINAGUR
CHALSA
LOCAL
115
BINAGURI 220 kv
NJP 220 kV (WB)
115
SILIGURI
BINAGURI
BIRPARA
216
168
BONGAIGAON
TLDP-III
N.PURNEA
220

ANNEXURE - C.1

Maintenance Schedule of Thermal Generating Units for January, 2016 as per LGBR 2015-16

System	Station	Unit	Size (MW)	period		No. of Days	Reason
				From	To		
DVC	CTPS	7	250	31.12.15	17.01.16	18	Burner Replacement
ODISHA	IBTPS	1	210	05.01.16	25.01.16	21	Annual maintenance

Additional Maintenance Schedule as informed by constituents							
NHPC	Teesta-V	**2**		**14.01.16**	**03.02.16**	**20**	**Annual Overhaul/Maintenance**
NTPC	Farakka	2	200	15.01.16	31.01.16	15	Overhaul/Maintenance
DPL*	DPL	7	300	05.01.16	20.01.16	15	Overhaul/Maintenance

* Subjected to availability of unit 8

EASTERN REGIONAL LOAD DESPATCH CENTRE
KOLKATA

TRANSMISSION ELEMENTS OUTAGE APPROVED IN 116TH 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
1	**400 KV BUS - IV AT MAITHON**	**24/12/2015**	**08:00**	**24/12/2015**	**16:00**	**ODB**	ER-II-KOL	**FOR REMOVAL OF JACK BUS . MAIN BAY OF KHG- I AND MEJIA - II WILL BE OUT.**	
2	400 KV BARH - GORAKHPUR - I	24/12/2015	08:00	25/12/2015	18:00	ODB	ER-I	LINE INSULATOR REPLACEMENT ORK DAMAGED BY MISCREANTS	NLDC
3	400KV BUS-I-Bolangir	24/12/2015	09:00	24/12/2015	18:00	ODB	ER-II-OR	AMP Work	
4	400KV KHARAGPUR Main Bay (404)-Baripada	24/12/2015	09:00	24/12/2015	17:00	ODB	ER-II-OR	ANNUAL MAINTENANCE	
5	SEL-II MAIN BAY (427)-Rourkela	24/12/2015	09:00	24/12/2015	17:00	ODB	ER-II-OR	AMP Work	
6	132KV D/C Malda-Khejuria line	24/12/2015	07:00 hrs	26/12/2015	17:00hrs	ODB	ER-II-KOL	Re-conductoring work of 400KV Farakka-Malda D/c Line	WEST BENGAL
7	400 KV BUS-II Malda	24/12/2015	09:00 hrs	25/12/2015	17:00 hrs	ODB	ER-II-KOL	ISOLATOR ALLIGNMENT OF FARAKKA-I FDR.	
8	400KV Berhampore Jeerat Line	24/12/2015	08:00	24/12/2015	17.00HRS	ODB	ER-II-KOL	Replacement of Y-Phase CVT due to voilation in 2ry voltage decided in ORM metting held at Durgapur on 11.07.2015	WEST BENGAL
9	400 Kv Bus-4 Durgapur	24/12/2015	08:00	24/12/2015	18:00	ODB	ER-II-KOL	AMP works	
10	BRP-NSLG-I	24/12/2015	09:00	24/12/2015	17:00	ODB	ER-II-KOL	Bus-II Conductor replacement	
11	160MVA ICT#2 Siliguri	25/12/2015	**09.00 Hrs**	25/12/2015	**17:00 Hrs**	**ODB**	ER-II-KOL	**AMP**	WEST BENGAL
12	400KV NPRN-BSF-1 & 2	25/12/2015	09:00	07/01/2016	18:00	ODB	ER-I	FOR CONSTRUCTION WORK FOR SWAPPING OF NPRN BAYS 1 & 2 WITH SSRM BAYS 3 & 4 AT BSF	Will be allowed After restoration of Farakka - Malda D/C
13	400 KV BARH - GORAKHPUR - II	25/12/2015	08:00	26/12/2015	18:00	ODB	ER-I	LINE INSULATOR REPLACEMENT ORK DAMAGED BY MISCREANTS	NLDC
14	315MVA ICT-I AT Maithon	25/12/2015	09:00	25/12/2015	18:00	ODB	ER-II-KOL	AMP Works. And 42389B-RPh isolator alignment	DVC
15	100MVA ICT#1 Siliguri	25/12/2015	**06.00 Hrs**	**25/01/2016**	**16:00 Hrs**	**Continuous**	ER-II-KOL	**Replacement of Present ICT with 160MVA ICT**	WEST BENGAL
16	220kV Main Bus-II Siliguri	25/12/2015	**06.00 Hrs**	25/12/2015	**17.00 Hrs**	**ODB**	ER-II-KOL	**Dismantling of Main Bus-2 Isolator of ICT#1**	WEST BENGAL
17	400KV NSLG-BONG I & II	25/12/2015	09:30	31/12/2015	17:30	OCB	ER-II-KOL	Railway modification work	NLDC
18	**400 kv Binagudi - Rangpo- Teesta -I**	25/12/2015	09:00	31/01/2016	17:00	ODB	ULDC	OPGW STRINING WORK	TEESTA
19	**A/R Angul- Bolangir**	25/12/2015	09:00	31/01/2016	17:00	ODB	ULDC	OPGW STRINING WORK	EITHER A/R OF ANUGUL - BOLANGIR - JAYPORE OR A/R BARIPADA - KEONJAR - RENGALI ONE CKT WILL BE ALLOWED AT A TIME.
20	**A/R Jeypore -Bolangir**	25/12/2015	09:00	31/01/2016	17:00	ODB	ULDC	OPGW STRINING WORK	EITHER A/R OF ANUGUL - BOLANGIR - JAYPORE OR A/R BARIPADA - KEONJAR - RENGALI ONE CKT WILL BE ALLOWED AT A TIME.
21	**A/R Baripada-Keonjhar**	25/12/2015	09:00	31/01/2016	17:00	ODB	ULDC	OPGW STRINING WORK	EITHER A/R OF ANUGUL - BOLANGIR - JAYPORE OR A/R BARIPADA - KEONJAR - RENGALI ONE CKT WILL BE ALLOWED AT A TIME.
22	**A/R Keonjhar-Rengali**	25/12/2015	09:00	31/01/2016	17:00	ODB	ULDC	OPGW STRINING WORK	EITHER A/R OF ANUGUL - BOLANGIR - JAYPORE OR A/R BARIPADA - KEONJAR - RENGALI ONE CKT WILL BE ALLOWED AT A TIME.
23	400 KV BUS COUPLER CB AT JERAT	25/12/2015	06:00	28/12/2015	15:00	OCB	WBSETCL	CB REPLACEMENT	
24	765 KV,1500 MVA ICT - I AT NEW RANCHI	25/12/2015	08:00	25/12/2015	14:00	ODB	ER - I	COMMISIONING OF CSD & NTAMC	NLDC
25	**220 KV BUS - II AT BIRPARA ALONGWITH CHUKHA 1 & 2 FEEDER AT BIRPARA**	**26/12/2015**	**08:00**	**26/12/2015**	**16:00**	**ODB**	ER-II-KOL	**CONDUCTOR REPLACEMNET**	**NLDC**
26	400KV KHLG-LAKHISARAI-1	26/12/2015	09:00	26/12/2015	18:00	ODB	ER-I	FOR TL O&M WORK	
27	SLG-I LINE REACTOR AT NPRN	26/12/2015	10:00hrs	09/01/2016	18:00 hrs	OCB	ER-I	Line will be switched off for 10 minutes AT EACH TIME at the time of taking and returning of S/d of Reactor.	
28	400KV SLG-3 & MUZ-2 TIE BAY AT NPRN	26/12/2015	10:00hrs	26/12/2015	14:00 hrs	ODB	ER-I	CT oil sampling. INVOLVES NO POWER INTERUPPTION.	
29	400KV SLG-3 MAIN BAY AT NPRN	26/12/2015	15:00 hrs	26/12/2015	17:00 hrs	ODB	ER-I	CT oil sampling. INVOLVES NO POWER INTERUPPTION.	
30	400KV BUS-II-Bolangir	26/12/2015	09:00	26/12/2015	18:00	ODB	ER-II-OR	AMP Work	
31	220/132 KV 160MVA ICT#1-Baripada	26/12/2015	09:00	26/12/2015	17:00	ODB	ER-II-OR	ANNUAL MAINTENANCE	ODISHA
32	RANCHI-I MAIN BAY (421)-Rourkela	26/12/2015	09:00	26/12/2015	17:00	ODB	ER-II-OR	AMP Work	
33	400KV Maithon Mejia-II Line	26/12/2015	09:00	26/12/2015	14:00	ODB	ER-II-KOL	Line CT AMP Test	DVC
34	315MVA ICT-II Subhasgram	26/12/2015	08:00Hrs	26/12/2015	17:30Hrs	ODB	ER-II-KOL	AMP WORK AND ATTENDING OIL LEAKAGE	WEST BENGAL
35	220kV Transfer Bus Siliguri	26/12/2015	**06.00 Hrs**	26/12/2015	**17.00 Hrs**	**ODB**	ER-II-KOL	**Dismantling of Trasfer Bus Isolator of ICT#1**	

36	765 KV,240MVARBR - I AT NEW RANCHI	26/12/2015	08:00	26/12/2015	14:00	ODB	ER - I	COMMISIONING OF CSD & NTAMC	NLDC
37	400 KV BUS - I AT FARAKKA	26/12/2015	09:00	26/12/2015	15:00	ODB	ER-II-KOL	FOR REMOVAL OF BUS JUMPER FROM BAY - 10	
38	315 MVA ICT & FRK - LALMATIA	26/12/2015	09:00	26/12/2015	15:00	ODB	ER-II-KOL	FOR REMOVAL OF BUS JUMPER FROM BAY - 11	
39	**220 KV BUS - II AT BIRPARA ALONGWITH BINAGURI - II FEEDER AT BIRPARA**	**27/12/2015**	**08:00**	**27/12/2015**	**16:00**	**ODB**	ER-II-KOL	**CONDUCTOR REPLACEMNET**	
40	220KV BUS-1 AT PURNEA	27/12/2015	11.00 HRS	27/12/2015	18.00 HRS	ODB	ER-I	FOR DISMANTLING OF ICT-1 BAY 220 KV MAIN BUS-1 & 2 ISOLATORS	BIHAR
41	400KV Maithon Gaya-I line	27/12/2015	09:00	27/12/2015	18:00	ODB	ER-II-KOL	Removal of pipe bus required for commencing the retrofitting of 41752 BHEL CB with Alstom CB	
42	125 MVAR Bus Reactor -1 along with bays AT PATNA	28/12/2015	10:00	31/12/2015	17:00 hrs	ODB	ER-I	FOR BAY COMMISIONING WORK OF PATNA - KISHANGANJ LINE AT PATNA	
43	400KV MUZ-2 MAIN BAY AT NPRN	28/12/2015	10:00hrs	28/12/2015	12:00 hrs	ODB	ER-I	CT oil sampling. INVOLVES NO POWER INTERUPPTION.	
44	400KV MUZ 2 L/R AT NPRN	28/12/2015	12:00 hrs	28/12/2015	14:00 hrs	ODB	ER-I	CT oil sampling. INVOLVES NO POWER INTERUPPTION.	
45	400KV MUZ-1 LINE AT NPRN	28/12/2015	15:00 hrs	28/12/2015	17:00 hrs	ODB	ER-I	CT oil sampling. INVOLVES NO POWER INTERUPPTION.	
46	220KV BUS-2 AT PURNEA	28/12/2015	11.00 HRS	28/12/2015	18.00 HRS	ODB	ER-I	FOR DISMANTLING OF ICT-1 BAY 220 KV MAIN BUS-1 & 2 ISOLATORS	BIHAR
47	400KV BUS-1 AT NRNC	28/12/2015	08:00	06/01/2016	18:00	ODB	ER-I	FOR CHECKING OF ISOLATOR FROM NTAMC NANESHAR	
48	MAIN BAY OF 400 KV GAYA MTN -1 AT GAYA	28/12/2015	10:00	28/12/2015	17:00	ODB	ER-I	FOR AMP WORK	
49	50 MVAR L/R OF 400 KV GAYA - MTN - I AT GAYA	28/12/2015	10:00	28/12/2015	16:00	ODB	ER-I	FOR AMP WORK	
50	220/132 KV 160MVA ICT#2-Baripada	28/12/2015	09:00	28/12/2015	17:00	ODB	ER-II-OR	ANNUAL MAINTENANCE	ODISHA
51	400KV BARIPADA MAIN BAY-Keonjhar	28/12/2015	08:00	28/12/2015	17:00	ODB	ER-II-OR	AMP ACTIVITY	
52	220KV ICT-I INCOMER BAY(211)-Rourkela	28/12/2015	09:00	28/12/2015	17:00	ODB	ER-II-OR	AMP Work	ODISHA
53	1) 132KV Khejuria-Dhulian line(CKT-2)132KV Kheguria-Ambuja-Raghunathgang(CKT-2).(This is a double ckt line at the crossing area. So to take up the re-conductoring works, shut down of both ckts i.e. double ckt line is required).	28/12/2015	07:00 hrs	30/12/2015	17:00hrs	ODB	ER-II-KOL	Re-conductoring work of 400KV Farakka-Malda D/c Line	WEST BENGAL
54	315MVA ICT-II AT Maithon	28/12/2015	09:00	28/12/2015	17:00	ODB	ER-II-KOL	Tan Delta of 220KV R-PH Bushing at variable frequency.	DVC
55	315 MVA ICT-III Subhasgram	28/12/2015	08:00 HRS	28/12/2015	17:30 HRS	ODB	ER-II-KOL	AMP WORK	WEST BENGAL
56	400KV BUS REACTOR Berhampore	28/12/2015	10:00	01/01/2016	16.00HRS	OCB	ER-II-KOL	To attend oil leakage from PRV.	
57	**220 KV BUS - II AT BIRPARA ALONGWITH BINAGURI - I AND 160 MVA ICT - I FEEDER AT BIRPARA**	**29/12/2015**	**08:00**	**29/12/2015**	**16:00**	**ODB**	ER-II-KOL	**CONDUCTOR REPLACEMNET**	**WEST BENGAL**
58	**400 KV BUS - IV AT MAITHON**	**29/12/2015**	**08:00**	**29/12/2015**	**16:00**	**ODB**	ER-II-KOL	**RECONNECTION OF JACK BUS**	
59	400 KV BUS-I & BUS-II Malda	29/12/2015	07:00	29/12/2015	15:00	ODB	ER-II-KOL	BEAM ERECTION AND JACK BUS STRINGING.	WEST BENGAL/ BIHAR. LOAD AT MALDA AND PURNEA MAY BE RESTICTED ARROUND 210 MW
60	400KV SLG-4 & MUZ-1 TIE BAY AT NPRN	29/12/2015	10:00hrs	29/12/2015	14:00 hrs	ODB	ER-I	CT oil sampling. INVOLVES NO POWER INTERUPPTION.	
61	400KV MUZ -1 L/R AT NPRN	29/12/2015	15:00 hrs	29/12/2015	17:00 hrs	ODB	ER-I	CT oil sampling. INVOLVES NO POWER INTERUPPTION.	
62	MAIN BAY OF 400 KV GAYA MTN -2 AT GAYA	29/12/2015	10:00	29/12/2015	17:00	ODB	ER-I	FOR AMP WORK	
63	50 MVAR L/R OF 400 KV GAYA - MTN - 2 AT GAYA	29/12/2015	10:00	29/12/2015	16:00	ODB	ER-I	FOR AMP WORK	
64	400KV BARIPADA-BR TIE BAY-Keonjhar	29/12/2015	08:00	29/12/2015	17:00	ODB	ER-II-OR	AMP ACTIVITY	
65	ICT-I & 50MVAR B/R TIE BAY (423)-Rourkela	29/12/2015	09:00	29/12/2015	17:00	ODB	ER-II-OR	AMP Work	
66	400KV MALDA-2 MAIN BAY AT NPRN	30/12/2015	10:00hrs	30/12/2015	12:00 hrs	ODB	ER-I	CT oil sampling. INVOLVES NO POWER INTERUPPTION.	
67	400KV MALDA-2 & BR-1 TIE BAY AT NPRN	30/12/2015	12:00 hrs	30/12/2015	14:00 hrs	ODB	ER-I	CT oil sampling. INVOLVES NO POWER INTERUPPTION.	
68	Main Bay of 400kV Kahagaon Ckt-I (Bay-407) AT BANKA	30/12/2015	11:00 hrs	30/12/2015	15:00 hrs	ODB	ER-I	FOR AMP WORK	
69	400KV BUS REACTOR MAIN BAY-Keonjhar	30/12/2015	08:00	30/12/2015	17:00	ODB	ER-II-OR	AMP ACTIVITY	
70	ICT-I MAIN BAY (424)-Rourkela	30/12/2015	09:00	30/12/2015	17:00	ODB	ER-II-OR	AMP Work	
71	220 KV SUBHASGRAM- CESC CKT-1	30/12/2015	8:00Hrs	30/12/2015	17:00Hrs	ODB	ER-II-KOL	AMP WORK	WEST BENGAL
72	400 KV MERAMUNDALI - NEW DUBURI - II, 400 KV BUS - I AT NEW DUBURI	30/12/2015	09:00	30/12/2015	16:00	ODB	OPTCL	FOR TESTING & COMMISSIONING OF NEW CB	
73	400KV MALDA-1 MAIN BAY AT NPRN	31/12/2015	10:00hrs	31/12/2015	12:00 hrs	ODB	ER-I	CT oil sampling. INVOLVES NO POWER INTERUPPTION.	
74	400KV MALDA-1 TIE BAY AT NPRN	31/12/2015	12:00 hrs	31/12/2015	14:00 hrs	ODB	ER-I	CT oil sampling. INVOLVES NO POWER INTERUPPTION.	
75	Tie Bay of KAH CKT-I & BR (Bay-408) AT BANKA	31/12/2015	11:00 hrs	31/12/2015	15:00 hrs	ODB	ER-I	FOR AMP WORK	
76	400 KV BUS-I & BUS-II Malda	02/01/2016	07:00	02/01/2016	15:00	ODB	ER-II-KOL	BEAM ERECTION AND JACK BUS STRINGING.	WEST BENGAL/ BIHAR. LOAD AT MALDA AND PURNEA MAY BE RESTICTED ARROUND 210 MW
77	63 MVAR L/R OF Kishenganj -II along with bays AT PATNA	02/01/2016	10:00 hrs	03/01/2016	17:00 Hrs	ODB	ER-I	FOR BAY COMMISIONING WORK OF PATNA - KISHANGANJ LINE AT PATNA	
78	400KV NPRN-SLG-1 AT NPRN	02/01/2016	10:00 hrs	02/01/2016	11:00 hrs	ODB	ER-I	TESTING OF LINE ISOLATOR OPERATION FROM MANESAR	
79	400KV NPRN-SLG-2 AT NPRN	02/01/2016	12:00 hrs	02/01/2016	13:00 hrs	ODB	ER-I	TESTING OF LINE ISOLATOR OPERATION FROM MANESAR	

80	A/R OF 400 KV KHLG - MTN - 2	02/01/2016	07:00	31/01/2016	18:00	ODB	ER-I	FOR OPGW ERECTION WORK	OUT OF A/R OF KHG - BARH, KHG - MAITHON AND BSF - MZF ONE SHUTDOWN WILL BE ALLOWED AT A TIME.
81	A/R OF 400 KV BSF - MUZ-1	02/01/2016	07:00	31/01/2016	18:00	ODB	ER-I	FOR OPGW ERECTION WORK UNDER HVDC SCHEME	OUT OF A/R OF KHG - BARH, KHG - MAITHON AND BSF - MZF ONE SHUTDOWN WILL BE ALLOWED AT A TIME.
82	A/R OF 400 KV KHLG - BARH - II	02/01/2016	07:00	31/01/2016	18:00	ODB	ER-I	FOR OPGW ERECTION WORK	OUT OF A/R OF KHG - BARH, KHG - MAITHON AND BSF - MZF ONE SHUTDOWN WILL BE ALLOWED AT A TIME.
83	400KV ICT-2 MAIN BAY-Keonjhar	02/01/2016	08:00	02/01/2016	17:00	ODB	ER-II-OR	AMP ACTIVITY	
84	ICT-II TIE BAY (414)-Rourkela	02/01/2016	09:00	02/01/2016	17:00	ODB	ER-II-OR	AMP Work	
85	400KV Maithon Jamshedpur Line	02/01/2016	09:00	04/01/2016	18:00	ODB	ER-II-KOL	Insulator Replacement work of various crossing, Line Bay AMP	
86	220 KV SUBHASGRAM- CESC CKT-2	02/01/2016	08:00 HRS	02/01/2016	17:00Hrs	ODB	ER-II-KOL	AMP WORK	WEST BENGAL
87	400 KV BUS-I Malda	03/01/2016	08:00	03/01/2016	12:00	ODB	ER-II-KOL	ISOLATOR ALLIGNMENT OF FARAKKA-II FDR & ISOLATOR DISMANTLING OF FARAKKA-I FDR.	WEST BENGAL
88	400 KV BUS-II Malda	03/01/2016	13:00	03/01/2016	16:00	ODB	ER-II-KOL	ISOLATOR ALLIGNMENT OF FARAKKA-II FDR & ISOLATOR DISMANTLING OF FARAKKA-I FDR.	
89	400 KV SASARAM - BSF - 3	04/01/2016	09:00	05/01/2016	17:00	ODB	ER-I	BUSHING & COOLING BANK ERECTION OF L/R AT BSF	
90	400KV NPRN-MUZ-1 AT NPRN	04/01/2016	14:00 hrs	04/01/2016	15:00 hrs	ODB	ER-I	TESTING OF LINE ISOLATOR OPERATION FROM MANESAR	NLDC
91	400KV NPRN-MUZ-2 AT NPRN	04/01/2016	16:00 hrs	04/01/2016	17:00 hrs	ODB	ER-I	TESTING OF LINE ISOLATOR OPERATION FROM MANESAR	NLDC
92	220 KV PRN -DALKHOLA#1	04/01/2016	09.00 HRS	04/01/2016	17.00 HRS	ODB	ER-I	FOR BAY CONSTRUCTION WORK OF 160 MVA ICT AT PRN	
93	Main Bay of BR (Bay -409) AT BANKA	04/01/2016	11:00 hrs	04/01/2016	15:00 hrs	ODB	ER-I	FOR AMP WORK	
94	765/400 KV ICT -1 AT GAYA	04/01/2016	10:00	05/01/2016	17:00	OCB	ER-I	FOR BAY EXTN. WORK OF 765 KV GAYA - VARANASI	NLDC
95	NORTH SIDE HVDC MAIN BAY	04/01/2016	09:30	04/01/2016	17:30	ODB	ER-I	AMP WORK	
96	400KV Mendhasal Main Bay (401)-Duburi	04/01/2016	08:00	04/01/2016	17:00	ODB	ER-II-OR	TO PROVIDE MANUAL DRAIN VALVE	
97	400KVRENGALI MAIN BAY-Keonjhar	04/01/2016	08:00	04/01/2016	17:00	ODB	ER-II-OR	AMP ACTIVITY	
98	400kV Angul-Meramundali-1 Main Bay(406)-Angul	04/01/2016	09:00	04/01/2016	15:00	ODB	ER-II-OR	AMP Work	ODISHA
99	ICT-II MAIN BAY (415)-Rourkela	04/01/2016	09:00	04/01/2016	17:00	ODB	ER-II-OR	AMP Work	
100	220 KV BUS-II Malda	04/01/2016	09:00 hrs	04/01/2016	18:00 hrs	ODB	ER-II-KOL	AMP.	WEST BENGAL
101	220 KV SUBHASGRAM-KLC CKT	04/01/2016	08:00Hrs	04/01/2016	17:30Hrs	ODB	ER-II-KOL	AMP WORK	WEST BENGAL
102	220 KV Dalkhola - Malda - I	04/01/2016	09: 00 Hrs	04/01/2016	17:00 Hrs	ODB	ER-II-KOL	Annual maintenance work	Will be allowed After restoration of Farakka - Malda D/C
103	132 KV TBC CB Birpara SS	04/01/2016	09:00	06/01/2016	17:00	OCB	ER-II-KOL	CB Overhauling	WEST BENGAL
104	400KV Maithon - MPL -I	04/01/2016	09:00	06/01/2016	18:00	ODB	ER-II-KOL	Insulator Replacement work of various crossing, Line Bay AMP	
105	400KV MTN-KHG-I & II with LR	04/01/2016	09:00	04/01/2016	18:00	ODB	ER-II-KOL	Insulator Replacement work of 400 KV M-RB-1 LINE & M-D LINE, CSD re commissioning and Line CT amp	Will be allowed After restoration of Farakka - Malda D/C
106	400KV MTN-DURGAPUR-I & II	04/01/2016	12:30	04/01/2016	18:00	ODB	ER-II-KOL	Insulator Replacement work of 400 KV M-RB-1 LINE & M-D LINE	Will be allowed After restoration of Farakka - Malda D/C
107	DGP:50MVAR BUS REACTOR	04/01/2016	08:00	04/01/2016	15:00	ODB	WBSETCL	WINTER MAINTENANCE WORK	
108	400 KV MAIN BAY OF ICT-2 AT RANCHI S/S	05/01/2016	09:30	05/01/2016	16:30	ODB	ER-I	AMP WORK	
109	400KV PATNA-BALIA-1	05/01/2016	08:00	05/01/2016	13:00	ODB	ER-I	FOR DIAMOND FORMATION OF E/WIRE AT POWER LINE CROSSING NEAR BALIA	NLDC
110	400KV PATNA-BALIA-3 & 4	05/01/2016	14:00	05/01/2016	17:00	ODB	ER-I	FOR DIAMOND FORMATION OF E/WIRE AT POWER LINE CROSSING NEAR BALIA	NLDC
111	63 MVAR L/R OF Kishenganj -I along with bays AT PATNA	05/01/2016	10:00 hrs	07/01/2016	17:00 Hrs	ODB	ER-I	FOR BAY COMMISIONING WORK OF PATNA - KISHANGANJ LINE AT PATNA	
112	220 KV PRN-DALKHOLA#2	05/01/2016	09.00 HRS	05/01/2016	17.00 HRS	ODB	ER-I	FOR BAY CONSTRUCTION WORK OF 160 MVA ICT AT PRN	
113	Main Bay of 400kV Kahagaon Ckt-II (Bay-410) AT BANKA	05/01/2016	11:00 hrs	05/01/2016	15:00 hrs	ODB	ER-I	FOR AMP WORK	
114	400KV JSR-DURGAPUR	05/01/2016	09:30	05/01/2016	17:30	ODB	ER-I	AMP AND LINE BAY CT R PH REPLACEMENT	
115	765KV BUS-2 AT NRNC	05/01/2016	08:00	05/01/2016	18:00	ODB	ER-I	AMP WORKS	NLDC
116	EAST SIDE HVDC MAIN BAY	05/01/2016	09:30	05/01/2016	17:30	ODB	ER-I	AMP WORK	
117	765/400kV 1500MVA ICT#2-Sundergarh	05/01/2016	09:00	05/01/2016	15:00	ODB	ER-II-OR	AMP Work	NLDC
118	400KV Mendhasal Tie Bay (40102)-Duburi	05/01/2016	08:00	05/01/2016	17:00	ODB	ER-II-OR	TO REPAIR AIR COMPRESSOR	
119	400KV RENGALI- ICT-1 MAIN BAY-Keonjhar	05/01/2016	08:00	05/01/2016	17:00	ODB	ER-II-OR	AMP ACTIVITY	
120	SUNDARGARH-II & RANCHI-I TIE BAY (429)-Rourkela	05/01/2016	09:00	05/01/2016	17:00	ODB	ER-II-OR	AMP Work	
121	400/220kV ICT-II of Rengali	05/01/2016	08:30	20/01/2016	18:00	OCB	ER-II-OR	Overhauling of ICT-II	
122	400KV MTN Mejia-III line	05/01/2016	09:00	07/01/2016	18:00	ODB	ER-II-KOL	Insulator Replacement work of various crossing, Line Bay AMP	DVC
123	400 KV JEERAT- SUBHASGRAM LINE	05/01/2016	08:00Hrs	05/01/2016	17:30Hrs	ODB	ER-II-KOL	AMP WORK AND CB RETROFIT WORK	
124	220 KV Dalkhola - Malda - II	05/01/2016	09: 00 Hrs	05/01/2016	17:00 Hrs	ODB	ER-II-KOL	Annual maintenance work	Will be allowed After restoration of Farakka - Malda D/C

125	315MVA ICT-I (407 Bay) New Siliguri	05/01/2016	**9.00 hrs**	05/01/2016	**17.00 hrs**	**ODB**	ER-II-KOL	**AMP of NSLG**	
126	400KV RANGPO- TEESTA-V, CKT-2	05/01/2016	09:30	05/01/2016	17:30	ODB	ER-II-KOL	AMP Work	TEESTA
127	315 MVA ICT - 2 AND ASSOCITED BAYS AT KANIHA	05/01/2016	09:00	24/01/2016	17:00	OCB	NTPC	GASKET REPLACEMENT AND AMP WORK	ODISHA
128	220 KV MTN-DHANBAD-I &II	05/01/2016	09:00	05/01/2016	14:00	ODB	ER-II-KOL	Insulator Replacement work of 400 KV M-RB 1 LINE	DVC
129	400 KV MPL-RANCHI-I &II	05/01/2016	09:00	05/01/2016	15:00	ODB	ER-II-KOL	Insulator Replacement work of 400 KV M-RB LINE .	MPL
130	400KV BARIPADA-MENDHASAL LINE#1 AT MENDHASAL	05/01/2016	08:00:00	05/01/2016	18:00:00	ODB	ERII/Odisha	Disconnection of 63MVAR Line Reactor for shifting to Pandiabili	Reactor dismantling may be done during February, 2016 due to over voltage problem at Meramundali and Mendhasal area.
131	400KV DGP-PPSP#2	05/01/2016	08:00	05/01/2016	15:00	ODB	WBSETCL	WINTER MAINTENANCE WORK	
132	**400/132 KV ICT # 2 BARH**	**05/01/2016**	**09:30**	**09/01/2016**	**17:00**	OCB	NTPC	PM Job of ICT#2, CTs, LAs, Isolator, CB	
133	400 KV RENGALI - BARIPADA	05/01/2016	07:00	08/01/2016	17:00	ODB	OPTCL	ANNUAL MAINTENANCE	
134	220 KV BUDHIPADAR - TARKERA - I	05/01/2016	08:00	06/01/2016	16:00	ODB	OPTCL	ANNUAL MAINTENANCE	
135	132 KV LAKHISARAI - LAKHISARAI -1 (BSPTCL)	06/01/2016	10:00	06/01/2016	11:00	ODB	ER-I	OIL SAMPLING FOR DGA OF LINE CT	BIHAR
136	132 KV LAKHISARAI - LAKHISARAI -2 (BSPTCL)	06/01/2016	11:30	06/01/2016	12:00	ODB	ER-I	OIL SAMPLING FOR DGA OF LINE CT	BIHAR
137	400KV TIE BAY OF RANCHI-SIPAT-1 & FUTURE AT RANCHI	06/01/2016	09:30	06/01/2016	16:30	ODB	ER-I	AMP WORK	
138	400KV PATNA-BALIA-2	06/01/2016	08:00	06/01/2016	13:00	ODB	ER-I	FOR DIAMOND FORMATION OF E/WIRE AT POWER LINE CROSSING NEAR BALIA	NLDC
139	400KV PATNA-BALIA-3 & 4	06/01/2016	14:00	06/01/2016	17:00	ODB	ER-I	FOR DIAMOND FORMATION OF E/WIRE AT POWER LINE CROSSING NEAR BALIA	NLDC
140	132 KV PRN -KISHANGANJ OF BSPTCL	06/01/2016	09.00 HRS	06/01/2016	17.00 HRS	ODB	ER-I	FOR BAY AMP WORK AT PURNEA	BIHAR
141	Tie Bay of KAH CKT-II & Future ICT (Bay-411) AT BANKA	06/01/2016	11:00 hrs	06/01/2016	15:00 hrs	ODB	ER-I	FOR AMP WORK	
142	EAST SIDE HVDCFILTER MAIN BAY	06/01/2016	09:30	06/01/2016	17:30	ODB	ER-I	AMP WORK	
143	400 kV GAYA - KODERMA - I	06/01/2016	08:00	06/01/2016	18:00	ODB	ER-I	FOR REPLACEMENT OF INSULATORS DAMAGED BY MISCREANTS	
144	400KV SUNDARGARH-ROURKELA LINE#1-Sundergarh	06/01/2016	09:00	06/01/2016	15:00	ODB	ER-II-OR	AMP Work	
145	80MVAR BUS Reactor Main Bay (404)-Duburi	06/01/2016	08:00	06/01/2016	17:00	ODB	ER-II-OR	COMMISSIONING OF CSD	
146	400KV BUS -1-Keonjhar	06/01/2016	08:00	06/01/2016	17:00	ODB	ER-II-OR	AMP ACTIVITY	
147	Meramundali- 400kV B/R3 Tie Bay(405)-Angul	06/01/2016	09:00	06/01/2016	15:00	ODB	ER-II-OR	AMP Work	
148	220KV ICT-II INCOMER BAY (208)-Rourkela	06/01/2016	09:00	06/01/2016	17:00	ODB	ER-II-OR	AMP Work	ODISHA
149	220KV MLD DLK-1	06/01/2016	09:00 hrs	06/01/2016	17:00 hrs	ODB	ER-II-KOL	Bay AMP	Will be allowed After restoration of Farakka - Malda D/C
150	TIE OF ICT-I&TALA-I(408 bay) New Siliguri	06/01/2016	**9.00 hrs**	06/01/2016	**17.00 hrs**	**ODB**	ER-II-KOL	**AMP of NSLG**	
151	132 KV RANGPO-CHUZACHEN	06/01/2016	09:30	06/01/2016	17:30	ODB	ER-II-KOL	AMP Work	CHUZACHEN
152	400 KV BUS - 1 AT KANIHA	06/01/2016	09:00	06/01/2016	17:00	ODB	NTPC	AMP WORK	
153	220KV MTN-DUMKA-I&II	06/01/2016	09:00	06/01/2016	15:00	ODB	ER-II-KOL	Insulator Replacement work of 400 KV M-RB LINE , S/S AMP WORK	DVC
154	400KV DGP-PPSP#1	06/01/2016	08:00	06/01/2016	15:00	ODB	WBSETCL	WINTER MAINTENANCE WORK	
155	400kV BUS-I AT NPRN	07/01/2016	10:00 hrs	07/01/2016	18:00 hrs	ODB	ER-I	For AMP Work	
156	132 KV PRN (PG) - PRN(BSPTCL)-1 AT PURNEA	07/01/2016	09.00 HRS	07/01/2016	17.00 HRS	ODB	ER-I	FOR BAY AMP WORK AT PURNEA	BIHAR
157	400KV RNC-ROUKELA-2	07/01/2016	09:00	07/01/2016	17:00	ODB	ER-I	REPLACEMENT OF DAMAGED INSULTOR AT LOC NO 338(DAMAGED BY MISCREANTS)	
158	400KV BUS-2 AT NRNC	07/01/2016	08:00	15/01/2016	18:00	ODB	ER-I	FOR CHECKING OF ISOLATOR FROM NTAMC NANESHAR	
159	765/400 KV ICT -2 AT GAYA	07/01/2016	10:00	08/01/2016	17:00	OCB	ER-I	FOR BAY EXTN. WORK OF 765 KV GAYA - VARANASI	NLDC
160	400 kV GAYA - KODERMA - II	07/01/2016	08:00	07/01/2016	18:00	ODB	ER-I	FOR REPLACEMENT OF INSULATORS DAMAGED BY MISCREANTS	
161	400KV SUNDARGARH-ROURKELA LINE#2-Sundergarh	07/01/2016	09:00	07/01/2016	15:00	ODB	ER-II-OR	AMP Work	
162	**Talcher-Kolar HVDC Line (Pole-1)**	07/01/2016	**07:00**	09/01/2016	**18:00**	**OCB**	ER-II-OR	**Pole-1 shutdown will continue in the evening for Valve Cooling works. Pole-2 will be restored at 18:00hrs. Bipole shutdown on daily basis from 07:00hrs to 18:00hrs for DC line works.**	NLDC
163	**Talcher-Kolar HVDC Line (Pole-2)**	07/01/2016	**07:00**	08/01/2016	**18:00**	**ODB**	ER-II-OR		NLDC
164	80MVAR BUS Reactor-Baripada Line Tie Bay(40304)-Duburi	07/01/2016	08:00	07/01/2016	17:00	ODB	ER-II-OR	COMMISSIONING OF CSD	
165	400KV BUS -2-Keonjhar	07/01/2016	08:00	07/01/2016	17:00	ODB	ER-II-OR	AMP ACTIVITY	
166	400KV ROURKELA-SEL # 2-Rourkela	07/01/2016	09:00	07/01/2016	18:00	ODB	ER-II-OR	AMP Work	
167	220 KV Dalkhola - Siliguri - I	07/01/2016	09: 00 Hrs	07/01/2016	17:00 Hrs	ODB	ER-II-KOL	Annual maintenance work	Will be allowed After restoration of Farakka - Malda D/C
168	RANGPO -I(410 BAY) New Siliguri	07/01/2016	**9.00 hrs**	07/01/2016	**17.00 hrs**	**ODB**	ER-II-KOL	**AMP of NSLG**	
169	133 KV RANGPO-GANGTOK-1	07/01/2016	09:30	07/01/2016	17:30	ODB	ER-II-KOL	AMP Work	SIKKIM
170	132 KV BRP-WB-I (CB)	07/01/2016	09:00	09/01/2016	17:00	OCB	ER-II-KOL	CB Overhauling	WEST BENGAL
171	400KV Maithon - MPL - II	07/01/2016	09:00	09/01/2016	18:00	ODB	ER-II-KOL	Insulator Replacement work of various crossing, Line Bay AMP	MPL
172	400KV MTN-KHG-I & II with LR	07/01/2016	09:00	07/01/2016	18:00	ODB	ER-II-KOL	Insulator Replacement work of 400 KV M-RB-2 LINE & M-D LINE, CSD re commissioning and Line CT amp	Will be allowed After restoration of Farakka - Malda D/C
173	400KV MTN-DURGAPUR-I & II	07/01/2016	12:30	07/01/2016	18:00	ODB	ER-II-KOL	Insulator Replacement work of 400 KV M-RB-2 LINE & M-D LINE	Will be allowed After restoration of Farakka - Malda D/C

174	400KV DGP-PARULIA(PG)#2	07/01/2016	08:00	07/01/2016	15:00	ODB	WBSETCL	WINTER MAINTENANCE WORK	
175	220 KV SUBHASGRAM - EM - II	07/01/2016	09:00	11/01/2016	16:00	ODB	WBSETCL	WINTER MAINTENANCE WORK	
176	**400 KV Kh- Farakka#1**	**07/01/2016**	**09:00**	**07/01/2016**	**17:30**	ODB	NTPC	PM works & relay testing	
177	400 KV BINAGURI - BONGAIGAON - III	07/01/2016	08:00	07/01/2016	15:00	ODB	ENICL	Installation of dislodge hardware fittings,Jumper tightening and corridor clearance	
178	220 KV BHANJANAGAR - MERAMUNDALI - II	07/01/2016	07:00	07/01/2016	16:00	ODB	OPTCL	ANNUAL MAINTENANCE	
179	400KV MAIN BAY OF RANCHI - SIPAT -1 AT RANCHI	08/01/2016	09:30	08/01/2016	16:30	ODB	ER-I	AMP WORK	
180	400KV BSF-LAKHISARAI-2, 400KV BSF-SSRM-1 & 132KV BSF(BSPTCL)-SHEKPURA (OF BSPTCL)	08/01/2016	08:00	08/01/2016	17:00	ODB	ER-I	FOR DIAMOND FORMATION OF OPGW WIRE OF 400KV BSF-LKR-2 BETWEEN TOWER NOS 529 & 530	
181	63 MVAR L/R OF Kishenganj -II along with bays AT PATNA	08/01/2016	10:00 hrs	10/01/2016	17:00 Hrs	ODB	ER-I	FOR BAY COMMISIONING WORK OF PATNA - KISHANGANJ LINE AT PATNA	
182	400kV BUS-II AT NPRN	08/01/2016	10:00 hrs	08/01/2016	18:00 hrs	ODB	ER-I	For AMP Work	
183	132 KV PRN (PG) - PRN(BSPTCL)-2 AT PURNEA	08/01/2016	09.00 HRS	08/01/2016	17.00 HRS	ODB	ER-I	FOR BAY AMP WORK AT PURNEA	BIHAR
184	400 KV BARH - KAHALGAON - II	08/01/2016	08:00	10/01/2016	18:00	ODB	ER-I	FOR COMPLETION OPGW OF BARH - KHLG LINK IN MULTI CKT PORTION	NLDC
185	400 KV BARH - PATNA - I	08/01/2016	08:00	10/01/2016	18:00	ODB	ER-I	FOR COMPLETION OPGW OF BARH - KHLG LINK IN MULTI CKT PORTION	
186	400 kV GAYA - KODERMA - I	08/01/2016	08:00	08/01/2016	18:00	ODB	ER-I	FOR REPLACEMENT OF INSULATORS DAMAGED BY MISCREANTS	
187	765KV SUNDARGARH-ANGUL LINE-2-Sundergarh	08/01/2016	09:00	08/01/2016	15:00	ODB	ER-II-OR	AMP Work	NLDC
188	400KV ICT-1 -Keonjhar	08/01/2016	08:00	08/01/2016	17:00	ODB	ER-II-OR	AMP ACTIVITY	
189	400kV B/R-1 Main Bay(404)-Angul	08/01/2016	09:00	08/01/2016	15:00	ODB	ER-II-OR	AMP Work	
190	Gajuwaka-II Main Bay (413) -Jeypore	08/01/2016	09:30	08/01/2016	17:30	ODB	ER-II-OR	For AMP works	
191	400KV ROURKELA-SUNDARGARH # 2-Rourkela	08/01/2016	09:00	08/01/2016	18:00	ODB	ER-II-OR	AMP Work	
192	220KV MLD DLK-2	08/01/2016	09:00 hrs	08/01/2016	17:00 hrs	ODB	ER-II-KOL	Bay AMP	Will be allowed After restoration of Farakka - Malda D/C
193	400KV MTN Jamshedpur line	08/01/2016	09:00	10/01/2016	18:00	ODB	ER-II-KOL	Insulator Replacement work of various crossing, Line Bay AMP	
194	220 KV SUBHASGRAM-NEW TOWN CKT	08/01/2016	08:00Hrs	08/01/2016	17:30Hrs	ODB	ER-II-KOL	AMP WORK	WEST BENGAL
195	TIE OF PURNEA-IV&B/R-II(420 BAY) New Siliguri	08/01/2016	**9.00 hrs**	08/01/2016	**17.00 hrs**	**ODB**	ER-II-KOL	**AMP of NSLG**	
196	133 KV RANGPO-RANGIT	08/01/2016	09:30	08/01/2016	17:30	ODB	ER-II-KOL	AMP Work	
197	220 KV MTN-DHANBAD-I &II	08/01/2016	09:00	08/01/2016	14:00	ODB	ER-II-KOL	Insulator Replacement work of 400 KV M-RB 2 LINE , S/S AMP WORK	DVC
198	400 KV MPL-RANCHI-I &II	08/01/2016	09:00	08/01/2016	15:00	ODB	ER-II-KOL	Insulator Replacement work of 400 KV M-RB LINE .	MPL
199	400KV DGP-PARULIA(PG)#1	08/01/2016	08:00	08/01/2016	15:00	ODB	WBSETCL	WINTER MAINTENANCE WORK	
200	400 KV BINAGURI - BONGAIGAON - III	08/01/2016	08:00	08/01/2016	15:00	ODB	ENICL	Installation of dislodge hardware fittings,Jumper tightening and corridor clearance	
201	220 KV BHANJANAGAR - MERAMUNDALI - II	08/01/2016	07:00	08/01/2016	16:00	ODB	OPTCL	ANNUAL MAINTENANCE	
202	220 KV BUDHIPADAR - TARKERA - II	08/01/2016	08:00	11/01/2016	16:00	ODB	OPTCL	ANNUAL MAINTENANCE	
203	400 KV BUS - II FRK, 315 MVAICT AND FRK - LALMATIA	08/01/2016	09:00	08/01/2016	15:00	ODB	ER-II-KOL	FOR RECONNECTION OF BUS JUMPER	
204	400 kV GAYA - KODERMA - II	09/01/2016	08:00	09/01/2016	18:00	ODB	ER-I	FOR REPLACEMENT OF INSULATORS DAMAGED BY MISCREANTS	
205	**Talcher-Kolar HVDC Line (Pole-2)**	09/01/2016	**07:00**	**11/01/2016**	**18:00**	**OCB**	ER-II-OR	**Pole-1 will be restored at 18:00 hrs. Pole 2 shut down will continue in the evening for Valve cooling works. Biploe shutdown on daily basis from 07:00hrs to 18:00hrs for DC line works.**	NLDC
206	400KV MENDHASAL-BARIPADA MAIN BAY(411A)-Mendhasal	09/01/2016	08:00	09/01/2016	17:00	ODB	ER-II-OR	ANNUAL MAINTENANCE	ODISHA
207	400KV ROURKELA-RANCHI # 1-Rourkela	09/01/2016	09:00	09/01/2016	18:00	ODB	ER-II-OR	AMP Work	
208	220 KV Dalkhola - Siliguri - II	09/01/2016	09: 00 Hrs	09/01/2016	17:00 Hrs	ODB	ER-II-KOL	Annual maintenance work	Will be allowed After restoration of Farakka - Malda D/C
209	220KV MTN-DUMKA-I&II	09/01/2016	09:00	09/01/2016	15:00	ODB	ER-II-KOL	Insulator Replacement work of 400 KV M-RB LINE .	DVC
210	DGP: 315MVA TR#1	09/01/2016	08:00	09/01/2016	15:00	ODB	WBSETCL	WINTER MAINTENANCE WORK	
211	400 KV BUS-II Farakka	10/01/2016	09:00 hrs	10/01/2016	17:00 hrs	ODB	ER-II-KOL	FOR JUMPER REMOVAL FROM 3152 BAY BUS ISOLATOR.	WEST BENGAL
212	400 KV JSR - BARIPADA LINE	10/01/2016	07:00	13/01/2016	18:00	ODB	ER-I	FOR COMPLETION OF BALANCE OPGW ERECTION WORK (05 KM)	
213	**Talcher-Kolar HVDC Line (Pole-1)**	10/01/2016	**07:00**	**11/01/2016**	**18:00**	**ODB**	ER-II-OR	**Pole-1 will be restored at 18:00 hrs. Pole 2 shut down will continue in the evening for Valve cooling works. Biploe shutdown on daily basis from 07:00hrs to 18:00hrs for DC line works.**	NLDC
214	400KV MENDHASAL-DUBURI MAIN BAY(411B)-Mendhasal	10/01/2016	08:00	10/01/2016	17:00	ODB	ER-II-OR	ANNUAL MAINTENANCE	ODISHA
215	A/R scheme of 400 kv Jeypore-Indravati line at both the ends is to be put in NON-AUTO mode at Jeypore	10/01/2016	09:30	30/01/2016	17:30	ODB	ER-II-OR	For completion of balance 75% PID scanning work	
216	400 KV BUS-I Farakka	10/01/2016	09:00 hrs	10/01/2016	17:00 hrs	ODB	ER-II-KOL	FOR JUMPER RECONNECTION TO 1052 BAY BUS ISOLATOR AND BUS BAR STABILITY.	
217	400KV Maithon JSR Tie Bay (414)	10/01/2016	09:00	17/01/2016	17:00	OCC	ER-II-KOL	Overhauling of Operating Mechanism of 400kV BHEL CB	

218	315 MVA ICT#1 Durgapur	10/01/2016	08:00	17/01/2016	18:00	OCB	ER-II-KOL	Replacement of ICT#1 at Durgapur SS	DVC
219	132 KV BRP-WB-II (CB)	10/01/2016	09:00	12/01/2016	17:00	OCB	ER-II-KOL	CB Overhauling	WEST BENGAL
220	400KV Maithon -Jamshedpur Line	10/01/2016	09:00	14/01/2016	18:00	ODB	ER-II-KOL	Insulator Replacement work of various crossing, Line Bay AMP	DVC
221	BKTPP: 315MVA IBT#1	10/01/2016	08:00	12/01/2016	15:00	ODB	WBSETCL	WINTER MAINTENANCE WORK	
222	132 KV PRN (PG) - PRN(BSPTCL)-3 AT PURNEA	11/01/2016	09.00 HRS	08/01/2016	17.00 HRS	ODB	ER-I	FOR BAY AMP WORK AT PURNEA	BIHAR
223	315MVA ICT-2 AT JSR	11/01/2016	09:30	11/01/2016	17:30	ODB	ER-I	CT REPLACEMENT WORK OF MAIN BAY	JHARKHAND
224	765/400 KV ICT -3 AT GAYA	11/01/2016	10:00	12/01/2016	17:00	OCB	ER-I	FOR BAY EXTN. WORK OF 765 KV GAYA - VARANASI	NLDC
225	132 KV BUS COUPLER	11/01/2016	09:30	11/01/2016	17:30	ODB	ER-I	AMP WORK	
226	400KV ROURKELA - CHAIBASA # 1-Rourkela	11/01/2016	09:00	11/01/2016	18:00	ODB	ER-II-OR	Retrofitting of REL 670 relay in Main-I DP in place of SEL 321 relay	
227	765kV BUS REACTOR#1 MAIN BAY(701)-Sundergarh	11/01/2016	09:00	11/01/2016	17:00	ODB	ER-II-OR	AMP Work	NLDC
228	400KV TIE BAY OF BARIPADA-DUBURI (411T)-Mendhasal	11/01/2016	08:00	11/01/2016	17:00	ODB	ER-II-OR	ANNUAL MAINTENANCE	
229	400KV BARIPADA LINE-Keonjhar	11/01/2016	08:00	11/01/2016	17:00	ODB	ER-II-OR	AMP ACTIVITY	
230	ICT-II main Bay (418)-Jeypore	11/01/2016	09:30	11/01/2016	17:30	ODB	ER-II-OR	For AMP works	
231	400KV Maithon Gaya-I line	11/01/2016	09:00	11/01/2016	18:00	ODB	ER-II-KOL	Fixing of earlier removed pipe bus for taking the newly installed CB into service	
232	400KV Maithon Right Bank-I Line	11/01/2016	09:00	12/01/2016	18:00	ODB	ER-II-KOL	Insulator Replacement work of various crossing, Line Bay AMP	MPL
233	220 KV TBC DALKHOLA	11/01/2016	09: 00 Hrs	11/01/2016	17:00 Hrs	ODB	ER-II-KOL	Annual maintenance work	
234	BONGAIGON-III(424 BAY) New Siliguri	11/01/2016	**9.00 hrs**	11/01/2016	**17.00 hrs**	**ODB**	ER-II-KOL	**AMP of NSLG**	
235	DGP: 315MVA TR#2	11/01/2016	08:00	11/01/2016	15:00	ODB	WBSETCL	WINTER MAINTENANCE WORK	
236	220 KV BHANJANAGAR - MERAMUNDALI - II	11/01/2016	07:00	11/01/2016	16:00	ODB	OPTCL	ANNUAL MAINTENANCE	
237	400 KV BUS -1 AT LAKHISARAI	12/01/2016	10:00	12/01/2016	14:00	ODB	ER-I	AMP WORK	BIHAR
238	400KV KHLG-LAKHISARAI-II	12/01/2016	09:00	13/01/2016	18:00	ODB	ER-I	REPLACEMENT OF BALANCE DEFECTIVE INSULATORS FOUND AFTER PID	
239	220 KV NPRN-PRN#1 AT PURNEA	12/01/2016	09.00 HRS	12/01/2016	17.00 HRS	ODB	ER-I	FOR BAY CONSTRUCTION WORK OF 160 MVA ICT AT PRN	
240	765kV B/R#1-ICT#1 TIE BAY(702)-Sundergarh	12/01/2016	09:00	12/01/2016	17:00	ODB	ER-II-OR	AMP Work	NLDC
241	63 MVAR DUBURI LINE REACTOR -Mendhasal	12/01/2016	08:00	12/01/2016	17:00	ODB	ER-II-OR	ANNUAL MAINTENANCE	
242	400KV Maithon Gaya-II line	12/01/2016	09:00	12/01/2016	18:00	ODB	ER-II-KOL	AMP works and removal of pipe bus for commencementment of retrofitting job of 42052 CB(Tie bay of Gaya-II & ICT-II bay)	
243	220 KV SUBHASGRAM- WBSETCL CKT-1	12/01/2016	08:00Hrs	12/01/2016	17:30Hrs	ODB	ER-II-KOL	AMP WORK	WEST BENGAL
244	221 KV TBC DALKHOLA	12/01/2016	09: 00 Hrs	12/01/2016	17:00 Hrs	ODB	ER-II-KOL	Annual maintenance work	
245	220 KV SIDE 315MVA ICT-I(201 BAY) New Siliguri	12/01/2016	**9.00 hrs**	12/01/2016	**17.00 hrs**	**ODB**	ER-II-KOL	**AMP of NSLG**	
246	133 KV RANGPO-GANGTOK-1	12/01/2016	09:30	12/01/2016	17:30	ODB	ER-II-KOL	AMP Work	SIKKIM
247	400 KV BUS - 2 AT KANIHA	12/01/2016	09:00	12/01/2016	17:00	ODB	NTPC	AMP WORK	
248	BKTPP:400KV M.BUS I	12/01/2016	08:00	15/00/16	15:00	ODB	WBSETCL	WINTER MAINTENANCE WORK	
249	50 MVAR L/R OF RANCHI - MPL - II AT RANCHI	12/01/2016	10:00	12/01/2016	12:00	ODB	ER - I	FOR DGA NAD SWEEP FREQ OF REACTOR BUSHING	
250	400 KV BUS -2 AT LAKHISARAI	13/01/2016	10:00	13/01/2016	14:00	ODB	ER-I	AMP WORK	BIHAR
251	315MVA ICT-1 AT RANCHI	13/01/2016	09:30	13/01/2016	16:30	ODB	ER-I	AMP WORK	
252	402 Bays (Tie bay of ICT-I & JSR-I)	13/01/2016	09:00 HRS	16/01/2016	17:00 HRS	OCB	ER-I	for CSD installation	
253	400KV ROURKELA - CHAIBASA # 1-Rourkela	13/01/2016	09:00	14/01/2016	18:00	ODB	ER-II-OR	Reemoval of PIR in Main Bay CB (41652).The shutdown of the line required due to clearance issue.	
254	765kV ICT#1 MAIN BAY(703)-Sundergarh	13/01/2016	09:00	13/01/2016	17:00	ODB	ER-II-OR	AMP Work	NLDC
255	220 kV bus Coupler -Jeypore	13/01/2016	09:30	13/01/2016	17:30	ODB	ER-II-OR	For AMP works	ODISHA
256	400KV Maithon Right Bank-II Line	13/01/2016	09:00	14/01/2016	18:00	ODB	ER-II-KOL	Insulator Replacement work of various crossing, Line Bay AMP	MPL
257	400 KV JEERAT- SUBHASGRAM LINE	13/01/2016	08:00Hrs	13/01/2016	17:30Hrs	ODB	ER-II-KOL	CB RETROFIT WORK AND FINAL TESTING & COMMISSING	
258	220 KV SIDE 315MVA ICT-II(203 BAY) New Siliguri	13/01/2016	**9.00 hrs**	13/01/2016	**17.00 hrs**	**ODB**	ER-II-KOL	**AMP of NSLG**	
259	220KV Rangpo-New Melli, Ckt-2	13/01/2016	09:30	13/01/2016	17:30	ODB	ER-II-KOL	AMP Work	
260	400kV Sundargarh-IndBharat Line (RKL-RGH ckt-I)	13/01/2016	08:00:00	13/01/2016	17:30:00	ODB	ERII/Odisha/Sundargarh	For Insulator replacement in River crossing, NH/SH crossing, Raiway crossing etc.	NLDC
261	400 KV RENGALI - BARIPADA	13/01/2016	07:00	13/01/2016	17:00	ODB	OPTCL	ANNUAL MAINTENANCE	
262	400 KV BUS - I & FRK - KHG - 4	13/01/2016	09:00	13/01/2016	15:00	ODB	ER-II-KOL	FOR RECONNECTION OF BUS JUMPER	
263	50 MVAR B/R-1 AT JSR	14/01/2016	09:30	14/01/2016	17:30	ODB	ER-I	CT REPLACEMENT WORK .	
264	765KV ANGUL LINE#2 MAIN BAY(707)-Sundergarh	14/01/2016	09:00	14/01/2016	17:00	ODB	ER-II-OR	AMP Work	NLDC
265	220 KV SUBHASGRAM- WBSETCL CKT-2	14/01/2016	08:00Hrs	14/01/2016	17:30Hrs	ODB	ER-II-KOL	AMP WORK	WEST BENGAL
266	SILIGURI-I(205 BAY) New Siliguri	14/01/2016	**9.00 hrs**	14/01/2016	**17.00 hrs**	**ODB**	ER-II-KOL	**AMP of NSLG**	
267	220 KV RANGPO-JLHEP	14/01/2016	09:30	14/01/2016	17:30	ODB	ER-II-KOL	AMP Work	
268	132 KV WB-I Birpara SS	14/01/2016	09:00	14/01/2016	17:00	ODB	ER-II-KOL	AMP and base insulator of LA to be replaced	WEST BENGAL
269	400kV IndBharat-Raigarh Line (RKL-RGH ckt-I)	14/01/2016	08:00:00	15/01/2016	17:30:00	ODB	ERII/Odisha/Sundargarh	For Insulator replacement in River crossing, NH/SH crossing, Raiway crossing etc.	NLDC
270	**400kV Bus Reactor 1 AT FARAKKA**	**14/01/2016**	**09:00**	**14/01/2016**	**17:30**	ODB	NTPC	Relay & CT testing	
271	**400 KV Kh- Farakka#2**	**14/01/2016**	**09:00**	**14/01/2016**	**19:30**	ODB	NTPC	PM works & relay testing	

272	50 MVAR L/R OF RANCHI - MPL - I AT RANCHI	14/01/2016	10:00	14/01/2016	12:00	ODB	ER - I	FOR DGA NAD SWEEP FREQ OF REACTOR BUSHING	
273	400 KV BUS-I Farakka	15/01/2016	09:00 hrs	15/01/2016	17:00 hrs	ODB	ER-II-KOL	FOR JUMPER REMOVAL FROM 3152 BAY BUS ISOLATOR.	
274	400KV BSF-SSRM-2	15/01/2016	10:00	15/01/2016	14:00	ODB	ER-I	LINE BAY 409L AMP WORK	
275	500MVA ICT-I AT NPRN	15/01/2016	10:00 hrs	15/01/2016	13:00 hrs	ODB	ER-I	Checking of CSD waveform	BIHAR
276	400/220 KV 500 MVA ICT -1 AT GAYA	15/01/2016	10:00	15/01/2016	17:00	ODB	ER-I	FOR BAY EXTN. WORK OF 765 KV GAYA - VARANASI	BIHAR
277	765KV ANGUL LINE#2 TIE BAY(708)-Sundergarh	15/01/2016	09:00	15/01/2016	17:00	ODB	ER-II-OR	AMP Work	NLDC
278	**400 kv Jeypore-Indravati Line -Jeypore**	15/01/2016	**08:00**	**18/01/2016**	**17:00**	**ODB**	ER-II-OR	**For Insulator replacement in River crossing, NH/SH crossing, Raiway crossing etc.**	NLDC
279	400KV MTN-KHG-I Line with LR	15/01/2016	09:00	15/01/2016	14:00	ODB	ER-II-KOL	CSD re commissioning and Line CT amp	
280	BRP-CHP-I & II	15/01/2016	09:00	15/01/2016	17:00	ODB	ER-II-KOL	Bus-II Conductor replacement	NLDC
281	400KV MTN Mejia-III line	15/01/2016	09:00	19/01/2016	18:00	ODB	ER-II-KOL	Insulator Replacement work of various crossing, Line Bay AMP	DVC
282	BKTPP: 315MVA IBT#2	15/01/2016	08:00	17/01/2016	15:00	ODB	WBSETCL	WINTER MAINTENANCE WORK	
283	400 KV SASARAM - BSF - 3	16/01/2016	10:00	16/01/2016	17:00	ODB	ER-I	FOR TESTING & COMMISSIONING OF ITS L/R AT BSF	
284	315MVA ICT-II AT NPRN	16/01/2016	10:00 hrs	16/01/2016	13:00 hrs	ODB	ER-I	Commissioning of CSD Relay	BIHAR
285	125MVAR B/R-1 AT NRNC	16/01/2016	08:00	19/01/2016	18:00	ODB	ER-I	FOR CHECKING OF ISOLATOR FROM NTAMC NANESHAR	
286	220 KV BUS - I AT GAYA	16/01/2016	10:00	16/01/2016	16:00	ODB	ER-I	FOR BAY EXTN. WORK OF 765 KV GAYA - VARANASI	BIHAR
287	765KV DHARAMJAYGARH LINE#2 TIE BAY(717)-Sundergarh	16/01/2016	09:00	16/01/2016	17:00	ODB	ER-II-OR	AMP Work	NLDC
288	315MVA ICT#1 MAIN BAY (403)-Baripada	16/01/2016	09:00	16/01/2016	17:00	ODB	ER-II-OR	ANNUAL MAINTENANCE	
289	400KV MTN-KHG-II Line with LR	16/01/2016	09:00	16/01/2016	14:00	ODB	ER-II-KOL	CSD re commissioning	
290	220 KV BUS-1 Subhasgram	16/01/2016	08:00Hrs	16/01/2016	17:30Hrs	ODB	ER-II-KOL	AMP WORK	WEST BENGAL
291	BRP-NSLG-II & 160 MVA IC-II Birpara SS	16/01/2016	09:00	16/01/2016	17:00	ODB	ER-II-KOL	Bus-II Conductor replacement	WEST BENGAL
292	BKTPP:400KV M.BUS I	16/01/2016	08:00	16/01/2016	15:00	ODB	WBSETCL	WINTER MAINTENANCE WORK	
293	DGP: 400KV B/C BAY	16/01/2016	08:00	16/01/2016	15:00	ODB	WBSETCL	WINTER MAINTENANCE WORK	
294	**400kV Fkk Malda 1**	**16/01/2016**	**09:00**	**16/01/2016**	**17:30**	ODB	NTPC	Relay & CT testing	
295	403 Bays (Main bay of ICT-I)	17/01/2016	09:00 HRS	20/01/2016	17:00 HRS	OCB	ER-I	for CSD installation	
296	BKTPP:400KV M.BUS II	17/01/2016	08:00	20/01/2016	15:00	ODB	WBSETCL	WINTER MAINTENANCE WORK	
297	DGP: 400KV TBC	17/01/2016	08:00	17/01/2016	15:00	ODB	WBSETCL	WINTER MAINTENANCE WORK	
298	BAY NO -12 OF FRK AND MAIN BAY OF ICT	17/01/2016	09:00	17/01/2016	15:00	ODB	ER-II-KOL	BAY UPGRDATION WORK	
299	L/R OF 400KV RANCHI - SIPAT -1 AT RANCHI	18/01/2016	09:30	20/01/2016	16:30	OCB	ER-I	FOR ATTENDING VIOLATION OF CC-CL VALUE (10 MINUTE LINE S/D REQUIRED AT THE TIME OF S OFF AND CHARGING)	
300	220 KV BUS - 2 AT GAYA	18/01/2016	10:00	18/01/2016	16:00	ODB	ER-I	FOR BAY EXTN. WORK OF 765 KV GAYA - VARANASI	BIHAR
301	400 KV BOKARO - KODERMA - I	18/01/2016	08:00	18/01/2016	18:00	ODB	ER-I	FOR REPLACEMENT OF INSULATORS DAMAGED BY MISCREANTS	DVC
302	765KV DHARAMJAYGARH LINE#2 MAIN BAY(718)-Sundergarh	18/01/2016	09:00	18/01/2016	17:00	ODB	ER-II-OR	AMP Work	NLDC
303	315MVA ICT#1 MAIN BAY (406)-Baripada	18/01/2016	09:00	18/01/2016	17:00	ODB	ER-II-OR	ANNUAL MAINTENANCE	
304	765kV ICT-IV Main Bay(713)-Angul	18/01/2016	09:00	18/01/2016	17:00	ODB	ER-II-OR	AMP Work	NLDC
305	220 KV MTN-DHANBAD-I	18/01/2016	09:00	18/01/2016	17:00	ODB	ER-II-KOL	AMP Works.	DVC
306	400KV Maithon JSR Main Bay (413)	18/01/2016	09:00	25/01/2016	17:00	OCC	ER-II-KOL	Overhauling of Operating Mechanism of 400kV BHEL CB	
307	220 KV BUS- I DALKHOLA	18/01/2016	09: 00 Hrs	18/01/2016	17:00 Hrs	ODB	ER-II-KOL	Annual maintenance work	WEST BENGAL
308	SILIGURI-II(206 BAY) New Siliguri	18/01/2016	**9.00 hrs**	18/01/2016	**17.00 hrs**	**ODB**	ER-II-KOL	**AMP of NSLG**	
309	400 KV ANDAL-JSR-I &II	18/01/2016	09:00	18/01/2016	15:00	ODB	ER-II-KOL	Insulator Replacement work of 400 KV M-MEJIA III LINE ,	DVC
310	400KV KHLG-FKK-1 & 2	19/01/2016	08:00	22/01/2016	18:00	OCB	ER-I	FOR POWERLINE CROSSING WORK FOR SHIFTING OF 400KV KHLG-BANKA LINE STAGE-1 TO STAGE-2 SIDE UNDER BUS SPLIT SCHEME AT NTPC/KHLG	MAY BE ALLOWED AFTER RESTORATION OF FARAKKA - MALDA
311	400 KV BUS - I AT GAYA	19/01/2016	10:00	19/01/2016	16:00	ODB	ER-I	FOR BAY EXTN. WORK OF 765 KV GAYA - VARANASI	BIHAR
312	400 KV BOKARO - KODERMA - II	19/01/2016	08:00	19/01/2016	18:00	ODB	ER-I	FOR REPLACEMENT OF INSULATORS DAMAGED BY MISCREANTS	DVC
313	400KV ICT#2 MAIN BAY(407)-Sundergarh	19/01/2016	09:00	19/01/2016	15:00	ODB	ER-II-OR	AMP Work	
314	400KV MENDHASAL MAIN BAY (410)-Baripada	19/01/2016	09:00	19/01/2016	17:00	ODB	ER-II-OR	ANNUAL MAINTENANCE	
315	220 KV MTN-DHANBAD-II	19/01/2016	09:00	19/01/2016	17:00	ODB	ER-II-KOL	AMP Works.	DVC
316	220 KV BUS-2 Subhasgram	19/01/2016	08:00Hrs	19/01/2016	17:30Hrs	ODB	ER-II-KOL	AMP WORK	WEST BENGAL
317	220 KV BUS-II DALKHOLA	19/01/2016	09: 00 Hrs	19/01/2016	17:00 Hrs	ODB	ER-II-KOL	Annual maintenance work	WEST BENGAL
318	BUS COUPLER (207 BAY) New Siliguri	19/01/2016	**9.00 hrs**	19/01/2016	**17.00 hrs**	**ODB**	ER-II-KOL	**AMP of NSLG**	
319	400 KV KANIHA - MERAMUNDALI	19/01/2016	09:00	21/01/2016	17:00	ODB	NTPC	AMP WORK	NOC REDUCTION AT GMR NAD JITPL IS REQUIRED. CATEGORY CHANGED TO ODB FROM OCB.
320	400KV DUBURI-MENDHASAL LINE AT MENDHASAL LINE (Old BPD-Mendhsal#2)	19/01/2016	08:00:00	19/01/2016	18:00:00	ODB	ERII/Odisha	Disconnection of 63MVAR Line Reactor for shifting to Pandiabili	Reactor dismantling may be done during February, 2016 due to over voltage problem at Meramundali and Mendhasal area.
321	400 KV PPSP - DURGAPUR - D/C	19/01/2016	08:00	21/01/2016	15:00	ODB	WBSETCL	WINTER MAINTENANCE WORK	
322	80 MVAR B/R AT LAKHISARAI	20/01/2016	16:00	21/01/2016	17:00	ODB	ER-I	FOR CSDCOMMISSIONING WORK UNDER CONSTRUCTION HEAD	

323	MAIN BAY OF 80 MVAR B/R AT LAKHISARAI	20/01/2016	09:00	20/01/2016	17:00	ODB	ER-I	FOR CSDCOMMISSIONING WORK UNDER CONSTRUCTION HEAD	
324	125MVAR B/R-2 AT NRNC	20/01/2016	08:00	22/01/2016	18:00	ODB	ER-I	FOR CHECKING OF ISOLATOR FROM NTAMC NANESHAR	
325	400 KV BUS -2 AT GAYA	20/01/2016	10:00	20/01/2016	16:00	ODB	ER-I	FOR BAY EXTN. WORK OF 765 KV GAYA - VARANASI	BIHAR
326	400 KV BOKARO - KODERMA - I	20/01/2016	08:00	20/01/2016	18:00	ODB	ER-I	FOR REPLACEMENT OF INSULATORS DAMAGED BY MISCREANTS	DVC
327	400KV ICT#2 TIE BAY(408)-Sundergarh	20/01/2016	09:00	20/01/2016	15:00	ODB	ER-II-OR	AMP Work	
328	400KV DUBURI MAIN BAY (407)-Baripada	20/01/2016	09:00	20/01/2016	17:00	ODB	ER-II-OR	ANNUAL MAINTENANCE	
329	765kV Tie ICT IV & 765kV BR II tie Bay(714)-Angul	20/01/2016	09:00	20/01/2016	17:00	ODB	ER-II-OR	AMP Work	NLDC
330	ICT-I (3x 105 MVA) at Jeypore	20/01/2016	10:30	20/01/2016	11:30	ODB	ER-II-OR	For changing ICT-I combination form Unit-I, II, III to Unit-I,II and IV for oil replacement works at Unit-III	ODISHA
331	TRANFER BUS COUPLER (208 BAY) New Siliguri	20/01/2016	**9.00 hrs**	20/01/2016	**17.00 hrs**	**ODB**	ER-II-KOL	**AMP of NSLG**	
332	400KV MEJIA- Jamshedpur line	20/01/2016	09:00	25/01/2016	18:00	ODB	ER-II-KOL	Insulator Replacement work of various crossing, Line Bay AMP	DVC
333	BKTPP: 315MVA IBT#1	20/01/2016	08:00	22/01/2016	15:00	ODB	WBSETCL	WINTER MAINTENANCE WORK	
334	220 KV BHANJANAGAR - MERAMUNDALI - I	20/01/2016	07:00	20/01/2016	16:00	ODB	OPTCL	ANNUAL MAINTENANCE	
335	TIE BAY OF 80 MVAR B/R AT LAKHISARAI	21/01/2016	09:00	21/01/2016	17:00	ODB	ER-I	FOR CSDCOMMISSIONING WORK UNDER CONSTRUCTION HEAD	
336	405 Bays (Tie bay of ICT-II & RKL-I)	21/01/2016	09:00 HRS	24/01/2016	17:00 HRS	OCB	ER-I	for CSD installation	
337	765 KV BUS - I AT GAYA	21/01/2016	10:00	21/01/2016	17:00	ODB	ER-I	FOR BAY EXTN. WORK OF 765 KV GAYA - VARANASI	NLDC
338	400 KV BOKARO - KODERMA - II	21/01/2016	08:00	21/01/2016	18:00	ODB	ER-I	FOR REPLACEMENT OF INSULATORS DAMAGED BY MISCREANTS	DVC
339	400KV B/R#1 MAIN BAY(413)-Sundergarh	21/01/2016	09:00	21/01/2016	15:00	ODB	ER-II-OR	AMP Work	
340	50 MVAR BUS REACTOR JEERAT	21/01/2016	09:00 HRS	21/01/2016	13:00 HRS	ODB	ER-II-KOL	AMP WORK	
341	BIRPARA-II(210 BAY) New Siliguri	21/01/2016	**9.00 hrs**	21/01/2016	**17.00 hrs**	**ODB**	ER-II-KOL	**AMP of NSLG**	
342	400 KV ANDAL-JSR-I &II	21/01/2016	09:00	21/01/2016	15:00	ODB	ER-II-KOL	Insulator Replacement work of 400 KV MEJIA -JSR LINE	DVC
343	**400kV Fkk Durgapur 2**	**21/01/2016**	**09:00**	**21/01/2016**	**17:30**	ODB	NTPC	Relay & CT testing	
344	**400 KV Kh- Maithon#1**	**21/01/2016**	**09:00**	**21/01/2016**	**19:00**	ODB	NTPC	PM works & relay testing	
345	315 MVA ICT - I AT MERAMINDALI	21/01/2016	07:00	22/01/2016	16:00	ODB	OPTCL	ANNUAL MAINTENANCE	
346	315MVA ICT-3 AT BSF	22/01/2016	10:00	22/01/2016	18:00	ODB	ER-I	220KV BAY MAINTENANCE WORK AT BSEB/BSF	BIHAR
347	765 KV BUS - 2 AT GAYA	22/01/2016	10:00	22/01/2016	17:00	ODB	ER-I	FOR BAY EXTN. WORK OF 765 KV GAYA - VARANASI	NLDC
348	400 KV BOKARO - KODERMA - I	22/01/2016	08:00	22/01/2016	18:00	ODB	ER-I	FOR REPLACEMENT OF INSULATORS DAMAGED BY MISCREANTS	DVC
349	400KV B/R#1 TIE BAY(414)-Sundergarh	22/01/2016	09:00	22/01/2016	15:00	ODB	ER-II-OR	AMP Work	
350	765kV BR-II Main Bay(715)-Angul	22/01/2016	09:00	22/01/2016	17:00	ODB	ER-II-OR	AMP Work	NLDC
351	220KV Maithon - Kalyaneshwari-1 line	22/01/2016	09:00	22/01/2016	17:00	ODB	ER-II-KOL	Alignment adjustment of line isolatorand Insulator replacement	DVC
352	220 KV SUBHASGRAM - EM - I	22/01/2016	09:00	28/01/2016	16:00	ODB	WBSETCL	WINTER MAINTENANCE WORK	
353	220 KV BHANJANAGAR - MERAMUNDALI - I	22/01/2016	07:00	22/01/2016	16:00	ODB	OPTCL	ANNUAL MAINTENANCE	
354	400 KV BUS - II AT FRK	22/01/2016	09:00	22/01/2016	15:00	ODB	ER-II-KOL	FOR REMOVAL OF BUS JUMPER	
355	400KV NRNC-RNC-1	23/01/2016	08:00	26/01/2016	18:00	ODB	ER-I	FOR CHECKING OF ISOLATOR FROM NTAMC NANESHAR	
356	400 KV BOKARO - KODERMA - II	23/01/2016	08:00	23/01/2016	18:00	ODB	ER-I	FOR REPLACEMENT OF INSULATORS DAMAGED BY MISCREANTS	DVC
357	51 MVAR BUS REACTOR JEERAT	23/01/2016	09:00 HRS	23/01/2016	17:30 HRS	ODB	ER-II-KOL	Bus reactor isolator replacement work	
358	400KV BKTPP-ARAMBAG	23/01/2016	08:00	23/01/2016	15:00	ODB	WBSETCL	WINTER MAINTENANCE WORK	
359	220KV Maithon - Kalyaneshwari-2 line	24/01/2016	09:00	24/01/2016	17:00	ODB	ER-II-KOL	Alignment adjustment of line isolatorand Insulator replacement	DVC
360	406 Bays (Main bay of ICT-II)	25/01/2016	09:00 HRS	26/01/2016	17:00 HRS	OCB	ER-I	for CSD installation	
361	52 MVAR BUS REACTOR JEERAT	25/01/2016	09:00 HRS	25/01/2016	17:30 HRS	ODB	ER-II-KOL	Bus reactor isolator replacement work and final commissioning	
362	400 KV KANIHA - ANUGUL	26/01/2016	09:00	28/01/2016	17:00	ODB	NTPC	AMP WORK	NOC REDUCTION AT GMR NAD JITPL IS REQUIRED. CATEGORY CHANGED TO ODB FROM OCB.
363	400KV NRNC-RNC-2	27/01/2016	08:00	29/01/2016	18:00	ODB	ER-I	FOR CHECKING OF ISOLATOR FROM NTAMC NANESHAR	
364	765kV Bus Reactor-2 -Angul	27/01/2016	09:00	27/01/2016	15:00	ODB	ER-II-OR	AMP Work	NLDC
365	220 KV Dalkhola- Purnea-I	27/01/2016	09: 00 Hrs	27/01/2016	17:00 Hrs	ODB	ER-II-KOL	Annual maintenance work	Will be allowed After restoration of Farakka - Malda D/C
366	125 MVAR BUS REACTOR -1 New Siliguri	27/01/2016	**9.00 hrs**	27/01/2016	**17.00 hrs**	**ODB**	ER-II-KOL	**AMP of NSLG**	
367	BKTPP: 315MVA IBT#2	27/01/2016	08:00	29/01/2016	15:00	ODB	WBSETCL	WINTER MAINTENANCE WORK	
368	315 MVA ICT - II AT MERAMINDALI	27/01/2016	07:00	28/01/2016	16:00	ODB	OPTCL	ANNUAL MAINTENANCE	
369	315 MVA ICT - I AND ASSOCIATED BAY OF INDRAVATI PH	27/01/2016	09:00	12/02/2016	18:00	OCB	OPTCL	ANNUAL MAINTENANCE	
370	400KV KHLG-MTN-1 & 2	28/01/2016	08:00	30/01/2016	18:00	OCB	ER-I	FOR POWERLINE CROSSING WORK FOR SHIFTING OF 400KV KHLG-BANKA LINE STAGE-1 TO STAGE-2 SIDE UNDER BUS SPLIT SCHEME AT NTPC/KHLG	NLDC
371	400KV Maithon Gaya-II line	28/01/2016	09:00	28/01/2016	18:00	ODB	ER-II-KOL	Fixing of earlier removed pipe bus for taking the newly installed CB into service	
372	220 KV Dalkhola- Purnea-II	28/01/2016	09: 00 Hrs	28/01/2016	17:00 Hrs	ODB	ER-II-KOL	Annual maintenance work	Will be allowed After restoration of Farakka - Malda D/C
373	KHARAGPUR:400KV B/C	28/01/2016	08:00	28/01/2016	15:00	ODB	WBSETCL	WINTER MAINTENANCE WORK	
374	**400kV Fkk Durgapur 1**	**28/01/2016**	**09:00**	**28/01/2016**	**17:30**	ODB	NTPC	Relay & CT testing	

375	**132KV Kh-Sabour line**	**28/01/2016**	**09:00**	**28/01/2016**	**17:30**	ODB	NTPC	PM works & relay testing	
376	765kV Angul-Sundergarh Line-2-Angul	29/01/2016	09:00	29/01/2016	15:00	ODB	ER-II-OR	AMP Work	NLDC
377	KHARAGPUR:315MVA TR-1	29/01/2016	08:00	29/01/2016	15:00	ODB	WBSETCL	WINTER MAINTENANCE WORK	
378	400KV NRNC-RNC-3	30/01/2016	08:00	02/02/2016	18:00	ODB	ER-I	FOR CHECKING OF ISOLATOR FROM NTAMC NANESHAR	
379	400KV BKTPP-JEERAT	30/01/2016	08:00	31/01/2016	15:00	ODB	WBSETCL	WINTER MAINTENANCE WORK	
380	KHARAGPUR:315MVA TR-2	30/01/2016	08:00	30/01/2016	15:00	ODB	WBSETCL	WINTER MAINTENANCE WORK	
381	400KV NRNC-RNC-4	03/02/2016	08:00	05/02/2016	18:00	ODB	ER-I	FOR CHECKING OF ISOLATOR FROM NTAMC NANESHAR	
382	765/400KV, 1500MVA ICT-1 AT NRNC	06/02/2016	08:00	10/02/2016	18:00	ODB	ER-I	FOR CHECKING OF ISOLATOR FROM NTAMC NANESHAR	NLDC
383	765/400KV, 1500MVA ICT-2 AT NRNC	11/02/2016	08:00	15/02/2016	18:00	ODB	ER-I	FOR CHECKING OF ISOLATOR FROM NTAMC NANESHAR	NLDC

Outages proposed in other RPCs requiring ERPC approval

Sl No	outages proposed in	Name of Requesting Agency	Name of Elements	From		To		Basis	Reason	Remarks (If Any)
				Date	Time	Date	Time			
1	WRPC	NTPC &PGCIL	Sipat-Ranchi-2 line	21/Dec/15	7:30	22-Dec-15	19:00	Continous	ANNUAL PREVENTIVE MAINTENANCE	
2	WRPC	WRTS-I	Jharsuguda (Sundergarh) - Korba (Dharamjaygarh) Ckt # 1 TL	22/Dec/15	8:00	22-Dec-15	18:00	Daily	Pending SAS works	
3	WRPC	WRTS-I	Sipat-Ranchi Ckt # 1 & 2	27-Dec-15	8:00	28-Dec-15	0:00	Daily	Non A/R mode of TL for Additional Earthing works	
4	WRPC	WRTS-I	Dharamjaygarh - Ranchi Ckt # 1	4-Jan-16	8:00	10-Jan-16	18:00	Continuous	Replacement of Quad Spacers	
5	WRPC	WRTS-I	Sipat Ranchi Ckt # 1	5-Jan-16	9:00	5-Jan-16	17:00	Daily	Conductor repairing and Insulator replacement	
6	WRPC	WRTS-I	Jharsuguda 1 Line Reator at Korba PS	11-Jan-16	8:00	11-Jan-16	18:00	Daily	NGR Bypass work	
7	SRPC	PG-SR2	KOLAR HVDC Filter	21-Dec-15	9:30	24-Dec-15	18:00	C	Replacement of DGA violated CTs in main bay (20C07.C) -3no's	Kolar HVDC power to be limited to 2000MW throughout the filter shutdown period
8	SRPC	PG-SR2	KOLAR HVDC Pole 1 & 2	7-Jan-16	7:00	7-Jan-16	19:00	D	For Insulator replacement in DC Lines in Polluted steches	ER-SR ATC may be curtailed.
9	SRPC	PG-SR2	KOLAR HVDC Pole 1	7-Jan-16	6:00	8-Jan-16	19:00	C	For HVDC AMP works on terminal equipment	ER-SR ATC may be curtailed.
10	SRPC	PG-SR2	KOLAR HVDC Pole 1 & 2	8-Jan-16	6:00	8-Jan-16	19:00	D	For Insulator replacement in DC Lines in Polluted steches	ER-SR ATC may be curtailed.
11	SRPC	PG-SR2	KOLAR HVDC Pole 1	8-Jan-16	19:00	9-Jan-16	6:00	C	For HVDC AMP works on terminal equipment	ER-SR ATC may be curtailed.
12	SRPC	PG-SR2	KOLAR HVDC Pole 1 & 2	9-Jan-16	6:00	9-Jan-16	19:00	D	For Insulator replacement in DC Lines in Polluted steches	ER-SR ATC may be curtailed.
13	SRPC	PG-SR2	KOLAR HVDC Pole 2	9-Jan-16	19:00	10-Jan-16	6:00	C	For HVDC AMP works on terminal equipment	ER-SR ATC may be curtailed.
14	SRPC	PG-SR2	KOLAR HVDC Pole 1 & 2	10-Jan-16	6:00	10-Jan-16	19:00	D	For Insulator replacement in DC Lines in Polluted steches	ER-SR ATC may be curtailed.
15	SRPC	PG-SR2	KOLAR HVDC Pole 2	10-Jan-16	19:00	11-Jan-16	6:00	C	For HVDC AMP works on terminal equipment	ER-SR ATC may be curtailed.
16	SRPC	PG-SR2	KOLAR HVDC Pole 1 & 2	11-Jan-16	6:00	11-Jan-16	18:00	D	For Insulator replacement in DC Lines in Polluted steches	ER-SR ATC may be curtailed.
17	SRPC	POWERGRID,SR-I	WA1.Z11.Z2.Z3 South Filter at HVDC Gajuwaka	29-Jan-16	9:00	29-Jan-16	18:00	C	AMP	
18	SRPC	POWERGRID,SR-I	WA1.Z11.Z1 South Filter at HVDC Gajuwaka	28-Jan-16	9:00	28-Jan-16	18:00	C	AMP	
19	SRPC	POWERGRID,SR-I	400 kV Jeypore-Gajuwaka-1	21-Jan-16	9:00	21-Jan-16	13:00	D	Signature Analysis of Line. System improvement works - outage may please be considered as deemed	ER-SR ATC may be curtailed.

20	SRPC	POWERGRID,SR-I	402 kV Jeypore-Gajuwaka-2	21-Jan-16	14:00	21-Jan-16	17:00	D	Signature Analysis of Line. System improvement works - outage may please be considered as deemed	ER-SR ATC may be curtailed.
21	NRPC	POWERGRID	765 kV Gaya-Fatehpur	21-Jan-16	8:00	22-Jan-16	18:00	D	Stringing of new 765kv Varanasi-Balia line.	
22	NERPC	ENCIL	400 kV Bongaigaon-New Siliguri-III	7-Jan-16	0800	7-Jan-16	1500	DAILY	Installation of dislodge hardware fittings,Jumper tightening and corridor clearance	
23	NERPC	ENCIL	400 kV Bongaigaon-New Siliguri-IV	8-Jan-16	0800	8-Jan-16	1500	DAILY	Installation of dislodge hardware fittings,Jumper tightening and corridor clearance	

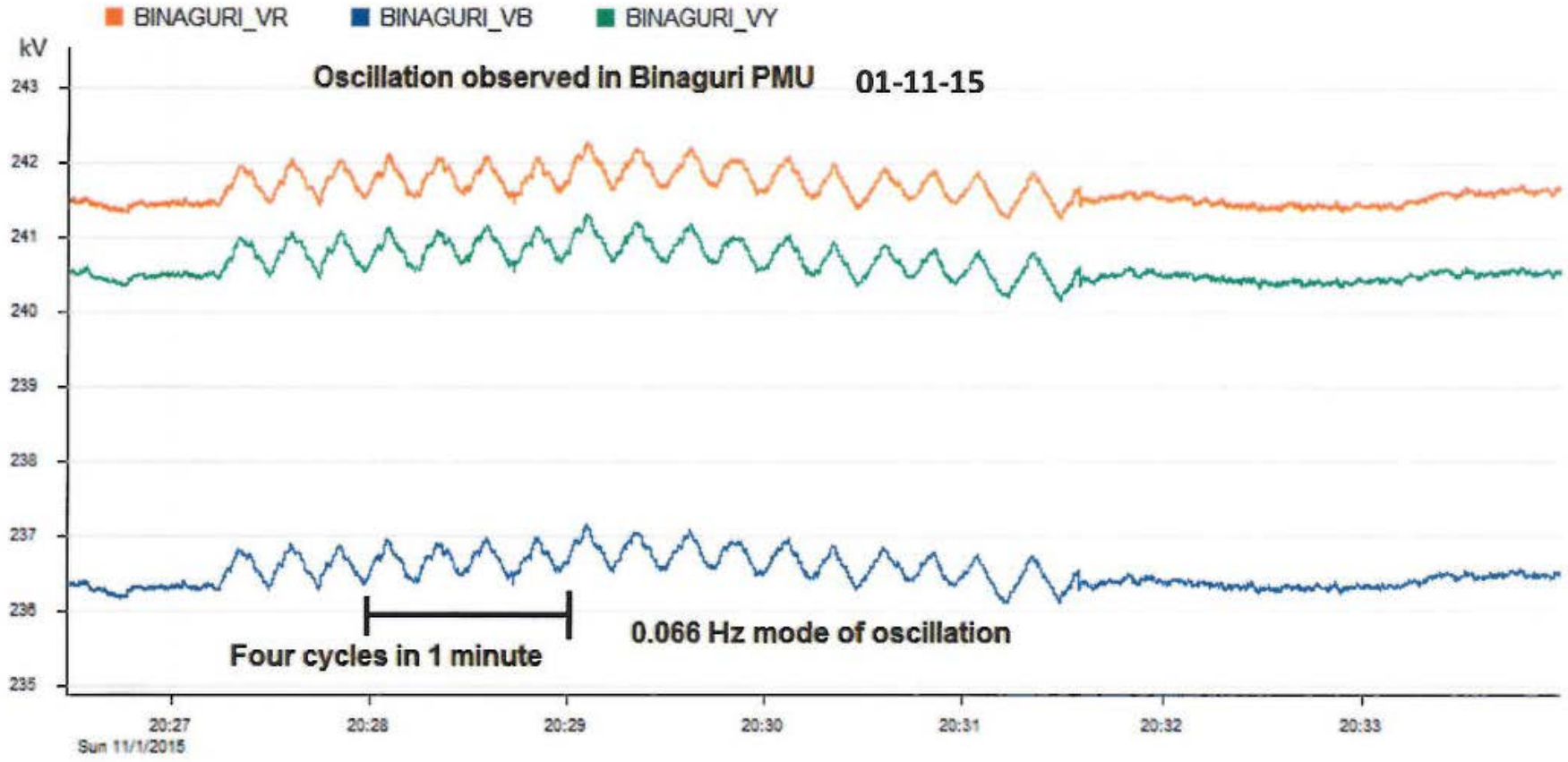
Annexure-C.2

Anticipated Power Supply Position for the month of
Jan-16

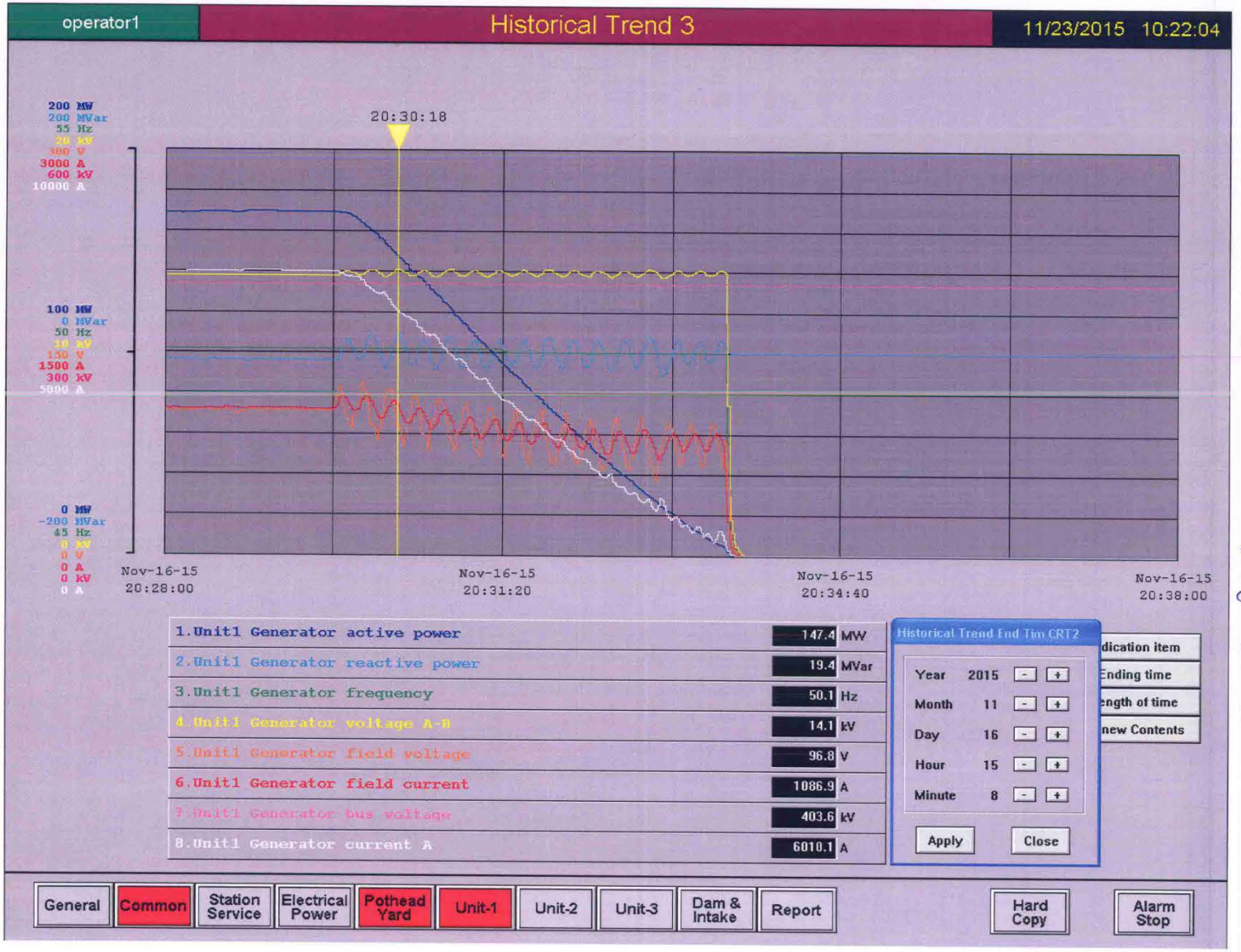
SL.NO		PARTICULARS	PEAK DEMAND MW	ENERGY MU
1		**BIHAR**		
	i)	NET MAX DEMAND	3000	1549
	ii)	NET POWER AVAILABILITY- Own Source (including bilateral)	670	159
		- Central Sector	2191	1369
	iii)	SURPLUS(+)/DEFICIT(-)	-139	-21
2		**JHARKHAND**		
	i)	NET MAX DEMAND	1170	753
	ii)	NET POWER AVAILABILITY- Own Source (including bilateral)	467	238
		- Central Sector	477	285
	iii)	SURPLUS(+)/DEFICIT(-)	-226	-230
3		**DVC**		
	i)	NET MAX DEMAND (OWN)	2702	1600
	ii)	NET POWER AVAILABILITY- Own Source	4687	2487
		- Central Sector	428	289
		Long term Bi-lateral (Export)	1250	930
	iii)	SURPLUS(+)/DEFICIT(-)	1163	246
4		**ODISHA**		
	i)	NET MAX DEMAND	3800	2182
	ii)	NET POWER AVAILABILITY- Own Source	2765	1506
		- Central Sector	1041	650
	iii)	SURPLUS(+)/DEFICIT(-)	6	-26
5		**WEST BENGAL**		
5.1		**WBSEDCL**		
	i)	NET MAX DEMAND (OWN)	5254	2705
	ii)	CESC's DRAWAL	170	32
	iii)	TOTAL WBSEDCL's DEMAND	5424	2736
	iv)	NET POWER AVAILABILITY- Own Source	3785	1997
		- Import from DPL	243	71
		- Central Sector	1470	907
	v)	SURPLUS(+)/DEFICIT(-)	74	238
5.2		**DPL**		
	i)	NET MAX DEMAND	280	209
	ii)	NET POWER AVAILABILITY	400	280
	iii)	SURPLUS(+)/DEFICIT(-)	120	71
5.3		**CESC**		
	i)	NET MAX DEMAND	1375	634
	ii)	NET POWER AVAILABILITY - OWN SOURCE	500	370
		FROM HEL	40	233
		FROM CPL/PCBL	305	0
		Import Requirement	530	32
	iii)	TOTAL AVAILABILITY	1375	635
	iv)	SURPLUS(+)/DEFICIT(-)	0	1
6		**WEST BENGAL (WBSEDCL+DPL+CESC)** **(excluding DVC's supply to WBSEDCL's command area)**		
	i)	NET MAX DEMAND	6909	3548
	ii)	NET POWER AVAILABILITY- Own Source	4685	2647
		- Central Sector	1510	1140
	iii)	SURPLUS(+)/DEFICIT(-)	-714	239
7		**SIKKIM**		
	i)	NET MAX DEMAND	90	38
	ii)	NET POWER AVAILABILITY- Own Source	16	3
		- Central Sector	103	55
	iii)	SURPLUS(+)/DEFICIT(-)	29	20
8		**EASTERN REGION** **At 1.03 AS DIVERSITY FACTOR**		
	i)	**NET MAX DEMAND**	17157	9670
		Long term Bi-lateral	1250	930
	ii)	**NET TOTAL POWER AVAILABILITY OF ER (INCLUDING C/S ALLOCATION)**	19039	10828
	iii)	**PEAK SURPLUS(+)/DEFICIT(-) OF ER (ii)-(i)**	633	228

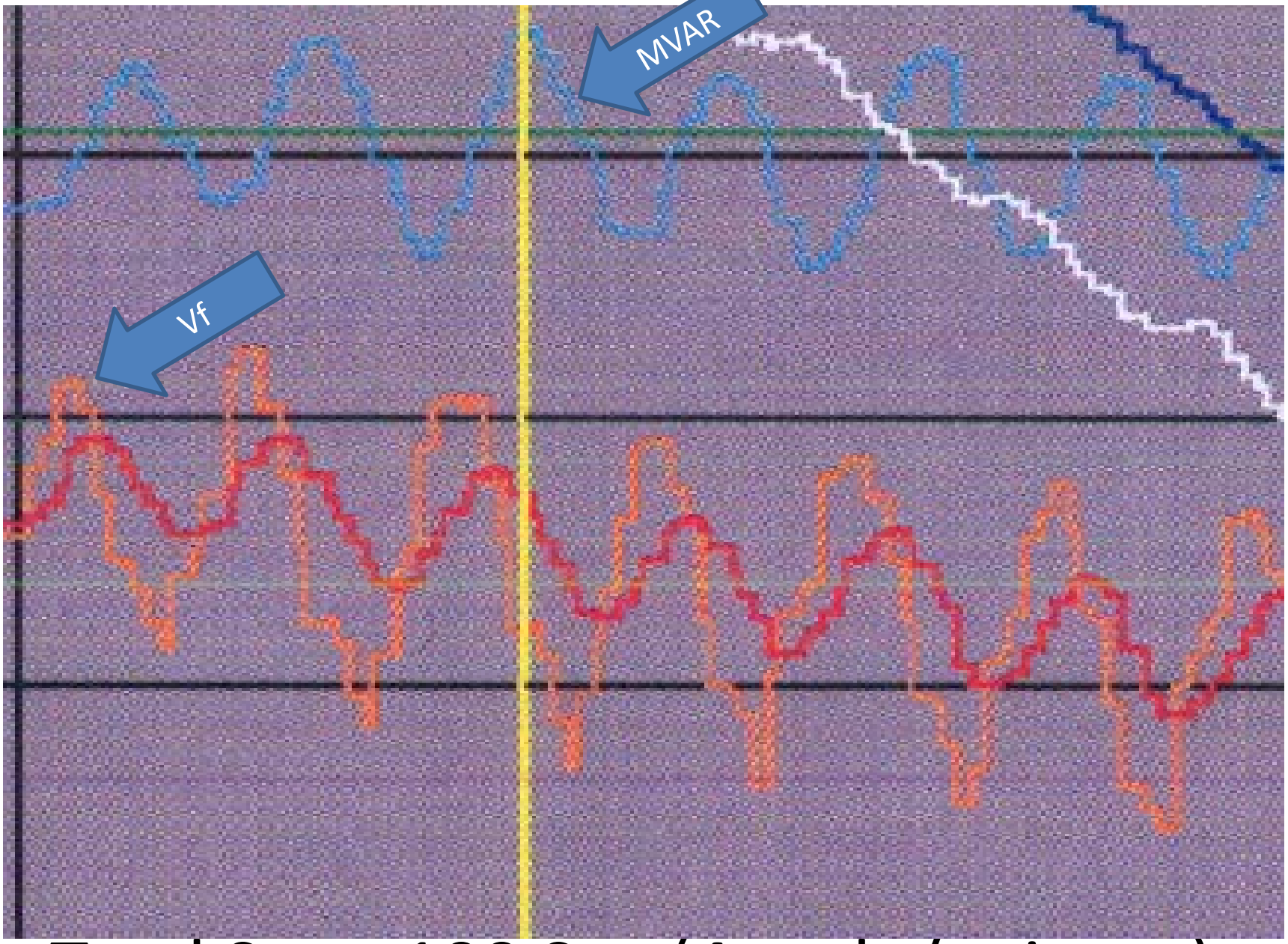
Annexure-D4

Presentation on Oscillations observed during desynchronising the units at Teesta-V Power Station


BINAGURI_VR
BINAGURI_VB
BINAGURI_VY
kV
Oscillation observed in Binaguri PMU
01-11-15
243
242
241
240
239
238
237
236
235
Four cycles in 1 minute
0.066 Hz mode of oscillation
20:27
Sun 11/1/2015
20:28
20:29
20:30
20:31
20:32
20:33

Unit #1 on 16/11/15 at 20:30 Hrs (Before Modification)





Total Span 100 Sec (4 cycle/ minute)

- It has observed that the Automatic PLC sequence & measurement system is responding with some time gap of around 4-5 seconds delay.
- The PLC was giving Pulse with the duration given below:
  - Pulse ON: 1 Sec AND with Condition of $< \pm 3$ MVAR
  - Pulse OFF: 0.5 Sec
- i.e., the time started giving either increase or decrease pulse and after AVR response – The MVAR measurement to PLC and HMI it is around 4-5 seconds time gap/delay.
- During this time delay AVR has been given several increase/decrease command which in turn leading to large variation in MVAR (it is found around $\pm$ 20 MVAR max).
- This is causing Oscillation in Grid Voltage.
- The duration modified as given below:
  - Pulse ON: 0.2 Sec AND with Condition of $< \pm 3$ MVAR
  - Pulse OFF: 6 Sec

After modification no oscillations observed in MVAR and Voltage