



AGENDA OF 183rd OCC MEETING

Date: 20.09.2021

Eastern Regional Power Committee

14, Golf Club Road, Tollygunge

Kolkata: 700033

EASTERN REGIONAL POWER COMMITTEE

AGENDA OF 183rd OCC MEETING TO BE HELD ON 20.09.2021 (MONDAY) AT 10:30 HRS

PART – A

ITEM NO. A.1: Confirmation of Minutes of 182nd OCC Meeting held on 24th August 2021 through MS Teams online platform.

The minutes of 182nd Operation Coordination sub-Committee meeting held on 24.08.2021 was circulated vide letter dated 08.09.2021

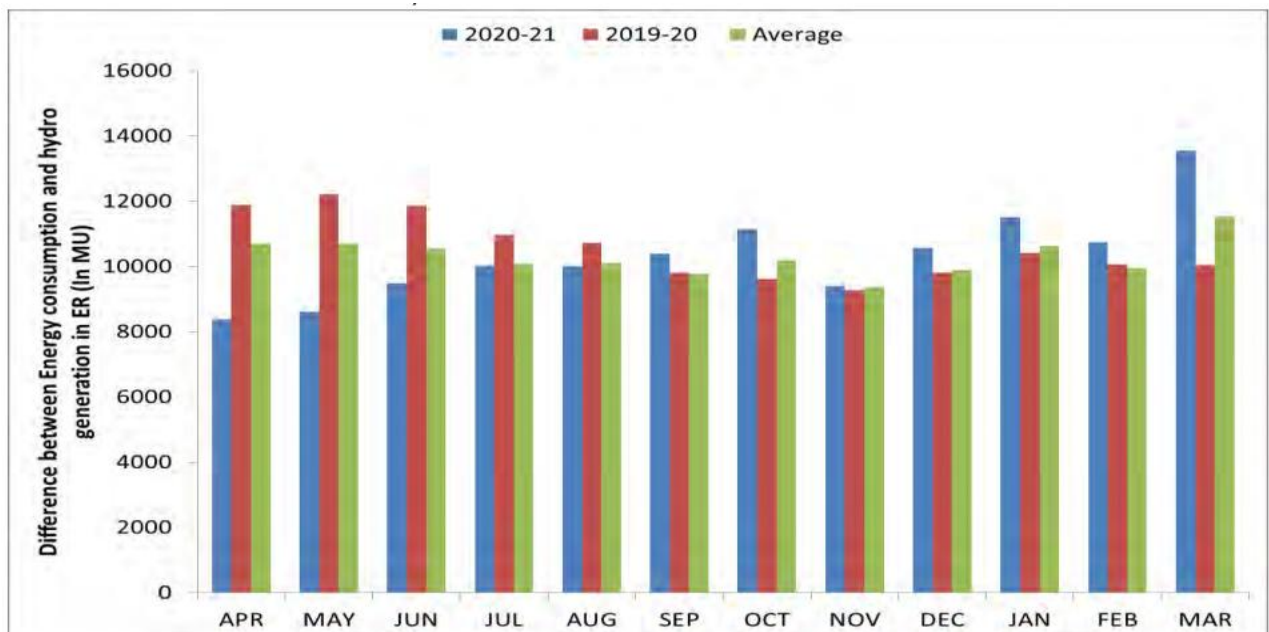
Members may confirm the minutes of 182nd OCC meeting.

PART B: ITEMS FOR DISCUSSION

ITEM NO. B.1: Declaration of high demand / low demand season for 2022-2023

During 182nd ER OCC meeting, ERLDC presented energy consumption by Eastern Region in past five years along with hydro generation during same period. It was shown that monthly average difference between energy consumption and hydro generation in Eastern Region was high during the month of March, April and May.

As advised by ERPC the exercise was conducted again and the graph is attached below. It's reconfirmed that the high/peak demand period may be considered during April 2022 & May 2022 and March 2023.



As per above chart, difference between energy consumption and hydro generation in Eastern Region was high during following months

- **2019-20***: April-19, May-19 and June-19
- **2020-21***: Oct-20, Jan-21, Mar-21

- **Average of last five years:** March, April and May

*Due to COVID related lockdown, energy consumption was low during March – June 2020

As per trend in previous five years, difference between energy consumption and hydro generation in Eastern Region was high during March, April and May as demand was in higher side with less support from hydro generation.

Hence April-2022, May-2022 and March -2023 may be considered high demand seasons for 2022-23.

Members may discuss.

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| ITEM NO. B.2: Reliable Power Supply to Lalmatia/Godda/Dumka areas of JUSNL |
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B4.1: Restoration of 220kV Farraka-Lalmatia S/C line

The 220 kV Farakka-Lalmatia S/C was out of service since April 2021 due to tower collapse. The 220/132/33 kV Lalmatia substation is relying on only 132 kV lines. At present the local load at 220 kV Dumka and Godda S/S were being radially fed from 400/220 kV Maithon S/S through 220 kV Maithon-Dumka D/C and 220 kV Dumka-Godda D/C.

In 181st OCC Meeting, JUSNL representative submitted that they had got a letter from NTPC on 19th July '21 regarding anti-theft charging of the 220kV Farraka-Lalmatia S/C line at 33kV level. Earlier the antitheft charging of the line was done at 11kV level but incidents of thefts have been reported in some portion of the conductor.

Further, Jharkhand representative requested NTPC to submit the details of the 33kV lines passing below 220kV Farakka-Lalmatia T/L. He added that as per information obtained from their JUSNL Discom part, the 33kV lines are mostly connected with 11kV feeders and due to this it would be difficult to charge the Farakka-Lalmatia line at 33kV level in Pakur area.

NTPC representative informed that they had charged the line up to loc no.241 but in between loc no.76-82 only the top conductor was in charged condition and the bottom rest were not; because of this theft might have happened in that portion. He further added that they had already isolated the section from loc no.76-82, whereas up to loc no.76 the line is in charged condition and from loc no.82-241 the line needs to be charged.

ERPC advised NTPC and Jharkhand to explore the possibility of antitheft charging at 33kV level first and if that is not feasible then charging at 11kV can be assessed.

In the meeting held on 10th August 2021 by the Hon'ble Secretary, Ministry of Power, Government of India, ECL was directed to handover the FLTS assets on "as is where is basis" to JUSNL, the Operation and Maintenance whereof as was with the NTPC is also to be transferred to the JUSNL without any further delay and latest by 20th August 2021. Further JUSNL was directed to comply with all other directions of the CERC's order dated 21.07.2020, after the transfer of the FLTS from ECL.

In the 182nd OCC meeting, JUSNL representative submitted that the tripartite agreement for taking over of FLTS as well as O&M of FLTS is in process and the same would be done after getting the consent from the competent authority by 4th week of August'2021.

OCC advised JUSNL to expedite the work for anti-theft charging without any further delay. JUSNL representative ensured to do the same.

ERLDC representative advised JUSNL for putting 220kV Lamatia-Godda line into service. JUSNL representative informed that they had tried to charge the line once but due to voltage rise at Lalmatia end, they had to open the line.

OCC advised JUSNL to re-check the possibility of charging the 220kV Lamatia-Godda line for reliable power supply to Lalmatia.

JUSNL may update.

B4.2: Commissioning of 220kV Tenughat-Govindpur line

In 179th OCC meeting, ERLDC representative stressed over the fact that commissioning of 220kV Tenughat-Govindpur line would increase the system reliability and the said line may be commissioned at the earliest.

In 181st OCC Meeting, Jharkhand representative submitted that as per the information received from Powergrid the line would be ready by July'21 end and it would take another 15 days for getting the necessary Statutory Clearance.

OCC advised Jharkhand to apply for the necessary Statutory Clearance in the meanwhile so that further delay can be avoided when the line gets ready. OCC advised Jharkhand to co-ordinate with Powergrid and get the said line ready by 15th August 21.

In the 182nd OCC meeting, JUSNL representative submitted that they had already got all the Statutory Clearance. He further added that only one railway crossing is pending which is expected to be completed by 10th Sept'21.

JUSNL may update.

B4.3: Status of O & M agreement with Powergrid for bay equipments at Maithon end and resolution of autorecloser issues in the 220 kV Maithon-Dumka Lines

In 103rd PCC meeting, during discussion of tripping of 220 kV Maithon-Dumka line-2 on 15/05/21, it was informed that the auto-recloser in the said line is not in operation due to some issues in PLCC. It was also come to notice that there was no formal agreement between JUSNL & Powergrid for O & M of the bay equipment at Maithon end. As a result, bay equipment at Maithon end for 220 kV Maithon-Dumka D/C lines are not being maintained properly.

In 181st OCC Meeting, Jharkhand representative submitted that some queries along with few finance observations had been raised to Powergrid in this regard. However, complete reply from Powergrid side is yet to be received and as soon as they receive the response from Powergrid, they would proceed for the agreement. However, in principle they are ready for the agreement.

ERPC opined that as Farakka-Lalmatia line is not in service at present, Maithon-Dumka line is of vital importance and healthiness of PLCC at both ends is to be ensured.

OCC advised Jharkhand to take up the necessary rectification work for ensuring the healthiness of the PLCC. In this regard, Powergrid has also given consent to Jharkhand for the necessary

PLCC work at Maithon end.

Jharkhand representative assured that the PLCC would be restored by 15th August 21.

In the 182nd OCC meeting, JUSNL representative submitted that Powergrid had submitted the revised estimate and the same is in the process for approval by competent authority. He further informed that it would be completed by 1st week of September'2021.

JUSNL may update.

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| ITEM NO. B.3: Outage of Important Transmission System. |
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B5.1. 132kV Sagbari–Melli.

Sikkim vide mail dated 09.06.2021 updated the following status:

- 1) In loc 82,83 & 84 we have low ground clearance which need hill cutting but if needed TL can be charged after putting temporarily barbed wire fencing .
- 2) In loc 98-99 a house had been constructed just below the line and warning had been issued to the owner for not to do vertical extension of the house till any such arrangement is made.
- 3) In loc 116 &117 land owner demanding for intermediate tower and not allowing for us to clear the jungles.
- 4) Loc 128 is in dilapidated condition due to sinking effect posing threat to lives and properties. Local public are asking to shift the tower in safe place before restoration of supply in the TL.
- 5) 80% of jungle clearance has been completed and remaining 20% is in Forest area most of it is under west district and waiting for permission from Forest department.
- 6) The delay in obtaining permission for following trees in forest land is that it cannot be ascertained whether FCA clearance during construction of TL was obtained as the record is not available either in power department or in DFO Office. Regarding this in the it had been told by ERPC that once obtaining environment clearance at the time of construction there need not to take permission for further clearance of ROW from Forest dept and this matter is been conveyed to the Forest department but they informed us as per Forest Act of Sikkim state permission has to be obtained for fresh felling with payment of compensation. File for approval is being send to conservator of Forest from DFO on 10/6/2021.

In the 181st OCC meeting, Sikkim representative submitted that for the rest 20% work, they are yet to get clearance from the Forest Department. He further informed that there are also some RoW issues in that portion of the line. Further, ERLDC representative stressed over the fact that being a very important line, the restoration of the 132kV Sagbari–Melli linemay be done at the earliest.

OCC advised Sikkim to take up the matter with Forest Department for obtaining necessary clearance and also to resolve the ROW issues without any further delay.

In the 182nd OCC meeting, Sikkim informed that the matter is under persuasion.

Sikkim may update.

B5.2. 220kV Pandiabili - Samangara D/C.

220kV Pandiabili-Samangara D/C line tripped on 03-02-2019 during the event of Fani due to

Tower collapse. 48 no towers got fully damaged and 12 no towers got partially damaged. Presently the line is charged from Pandiabili end up to location no 58. It is a very important line for supplying power to Puri area. The line is under outage more than 2 years.

In the 182nd OCC meeting, OPTCL representative submitted that the restoration work for 220kV Pandiabili - Samangara D/C line has been assigned to Powergrid. He further added that redesigning of tower in view of change of wind zone from Zone 4 to Zone 6 has also been taken up by Powergrid.

On query, OPTCL representative informed that the line is expected to be restored by March'2022.

ERLDC representative expressed that as 220kV Pandiabili - Samangara D/C line is of utmost important, thus the restoration of the said line may be expedited.

OCC advised OPTCL to expedite the work and also advised OPTCL to submit the work schedule mentioning the timelines for completion of designing, procurement and erection activities to ERPC and ERLDC.

OPTCL may update the status.

B5.3. 440/220kV 315 MVA ICT 2 at Meeramundali:

400KV/220KV 315 MVA ICT 2 at Meeramundali tripped on 21-02-2021 due to fire hazard at Meeramundali SS. The ICT is under outage since then. Meeramundali S/S is serving the important load of the Odisha. Long outage of an ICT at such crucial S/S may hamper the reliability of the Grid.

In the 182nd OCC meeting, OPTCL representative submitted that the old ICT, which was completely damaged, would be replaced by a new one. The new 315 MVA ICT of BHEL make has already arrived at site and the foundation modification work is going on. OPTCL representative stated that the replacement work is expected to be completed by 30th Nov'21.

OCC advised OPTCL to expedite the work and also to share the work schedule of the same to ERPC & ERLDC for effective monitoring of the same.

OPTCL may update.

ITEM NO. B.4: Metering arrangement for power supply to Manoharpur Coal Mine of OCPL from NTPC's Darlipali STPP.

Odisha Coal and Power Ltd. Vide letter dated 07.09.2021 (**Annexure-B4**) submitted the following regarding approval of drawl and metering scheme for power supply connectivity to OCPL from NTPC's Darlipali STPP Substation:

1. Odisha Coal and Power Limited (OCPL) is a Govt. of Odisha Joint Venture Company of Odisha Power Generation Corp. Ltd. (OPGC) & Odisha Hydro Power Corp. Ltd. (OHPC) with a shareholding ratio of 51:49 . The Manoharpur& Dip-side Manoharpur coal blocks have been allotted to OCPL by the Nominated Authority, Ministry of Coal (MoC), Gol on 31st August 2015 to supply coal exclusively to OPGC expansion power plant (4X660 MW) at Ib TPS. These coal blocks are situated in IS-Valley coalfields in the district of Sundargarh, Odisha. The extraction of coal from Manoharpur coal mine has already been commenced. Further, the construction work

of 8 MTPA Coal Handling Plant is in advanced stage for transportation of coal to Ib TPS through Merry go Round rail line.

2. For meeting the operational requirement of above coal mines, 15 MVA power has been envisaged. It has been agreed and planned during the year 2015 and 2016 to source this power at 33 KV level from the 765/132/33 KV Substation of NTPC's Darlipali STPP, which is the nearest and most reliable power source.

3. Accordingly, OCPL applied for this connectivity to the DISCOM i.e. WESCO (Now TPWODL) in prescribed format and it was forwarded to GRIDCO by the DISCOM. In response, GRIDCO has released 15 MVA power at 33 KV level from the 765/132/33 KV Darlipali substation of NTPC as part of drawl of Odisha share power. (Ref-1 dated 15/01/2016)

4. Further, as intimated by NTPC (Ref-3 dated 01/03/2016), OCPL took up the matter to the Ministry of Power (MoP), (Gol) for allocation of power, as Darlipali STPP is a Central Generating Station and in response, MoP, Gol approved for drawl of power from Darlipali STPP to OCPL through direct lines and intimated that this power shall be treated as part of Odisha's drawl. (Ref-4 dated 16/08/2016).

5. Accordingly, an agreement was executed between OCPL and NTPC (Ref- 5 dated 30/03/2017) for construction of additional 2 nos. of 132/33 KV bays on deposit basis adjacent to the existing switchyard at Darlipali as drawl of above power was not possible at NTPC's own 33 KV system. Further, OCPL awarded the Contracts for construction of a 33 KV dedicated double circuit radial line of 11 Km length and a 33/6.6 KV substation at mines end for consumption of power at the load end.

6. Post execution of the agreement with NTPC, the DISCOM (TPWODL) has accorded connectivity permission to OCPL as Large Industry category for drawl of power at 33 KV. (Ref-6 dated 14/08/2019)

7. It may also be noted that both GRIDCO and MoP, Gol has approved drawl of power for NTPC's Dulanga coal mine project (in vicinity of Manoharpur coal mines of OCPL) through direct line from Darlipali Substation as part of drawl of Odisha's share. Both the cases of NTPC's Dulanga coal mine project and OCPL are mostly similar.

8. The matter involving the additional outlets from Darlipali STPP and the installation of interface energy meters for both Dulanga coal mine project of NTPC and Manoharpur coal mine of OCPL was put up in the 19th Meeting of Standing Committee of Power system planning of Eastern Region held on 01/09/2017 for approval of the drawl by GRIDCO. In response, the Hon'ble Members suggested that the issue does not come under the purview of Standing Committee (Item no. 40.7) and the issue may be placed in the OCC meeting of ERPC.

It is pertinent to mention that the construction work for the 132/33 KV bays at Darlipali, the connecting 33 KV dedicated double circuit radial line (feeder) and the mine end 33/6.6 KV substation is in advanced stage of completion and the drawl of power by OCPL is expected during January 2022 to facilitate operation of the proposed coal handling plant.

Members may discuss.

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| ITEM NO. B.5: Inadequate reactive power performance of generating units during the high voltage condition. |
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Since 180th ER OCC meeting, ERLDC highlighted the issue of inadequate reactive power absorption by generating units during the high voltage condition. Due to inadequate reactive power absorption by generating units, voltage at various 400 kV and 765 kV remained high. As

per ERLDC SCADA data, following regional generating units' (ISGS & IPP) reactive power absorption was inadequate during August 2021.

| Name of generating units | Maximum MVar absorption limit (as per capability curve) | MVar absorption during maximum voltage (as per ERLDC SCADA data) | Maximum voltage during August 2021 |
|---|---|--|------------------------------------|
| Kahalgaon STPS Stage I - 210 MW Unit -1, 2, 3 & 4 | > 60 MVar | < 25-30 MVar | 424 kV |
| Kahalgaon STPS Stage II - 500 MW Unit – 6 & 7 | > 150 MVar | < 25 MVar | 424 kV |
| BRBCL - 250 MW Unit -1, 2 & 3 | > 100 MVar | 0 MVar (Unit was generating 30-50 MVar) | 415 kV |
| Nabinagar STPP Stage I - 660 MW Unit -1 | > 250 MVar | <5 MVar | 418 kV |
| MPL - 525 MW Unit -1 & 2 | > 150 MVar | < 20 – 40 MVar | 413 kV |
| JITPL - 600 MW Unit -1 & 2 | > 200 MVar | 0 MVar (Unit was generating 100-130 MVar) | 411 kV |

The details of the same are also attached at **Annexure-B5**.

Vide mail dated 07th September 2021, NTPC KhSTPP, BRBCL, NPGC, MPL & JITPL are requested to share the reason for non-satisfactory reactive power performance during August 2021 even after repeated follow up in OCC meeting. Actions taken by them in order to improve the performance are also requested to share.

NTPC KhSTPP, BRBCL, NPGC, MPL & JITPL may update.

ITEM NO. B.6: Reliability Issue at 220/132 kV Budhipadar S/s

The reliability issue at Budhipadar was discussed during analysis of the grid disturbance at Budhipadar S/s on 08/04/2021 in 101st PCC meeting. The issue was also discussed in 178th OCC meeting held on 20/04/2021.

Subsequently in the special meeting held on 10/05/2021, the followings were decided:

- The opening of 220 kV Vedanta-Budhipadar lines from Vedanta would be decided based on the system study to be carried out by OPTCL.
- Further, SLDC Odisha will plan and submit a SPS for further contingency at Budhipadar and subsequent generation reduction at IB TPS units.
- OPTCL to take utmost measure in ensuring the healthiness of substation equipments at Budhipadar till the time the short term measures are being implemented.

Further, OPTCL vide letter dated 29/06/2021 have submitted the study report for intrastate constraints in Odisha system in Budhipadar command area.

In line with the decision of 181st OCC Meeting, a special meeting was held on 04.08.2021 to discuss "Implementation of SPS at 220/132 kV Budhipadar S/s".

In the 182nd OCC meeting, OCC advised OPTCL to coordinate with SLDC and implement the SPS without delay by 4th week of August'2021. Further, OCC advised OPTCL to share the findings of the same to ERPC & ERLDC.

OPTCL may update.

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| ITEM NO. B.7: Agenda by OPTCL |
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1. Splitting of Budhipadar 220kV Bus due to high fault level.

OPTCL vide mail dated 30.08.2021 submitted that the fault level at Budhipadar 220 kV bus during steady state is 42.79 kA which is beyond the breaker rating of 40 kA. OPTCL has conducted the system study and the study reveals that in the base case the fault level is 42.79 kA while during splitting the fault level at the two buses are 30.40kA and 12.72kA. ERPC may advise suitable scenario to mitigate the fault level at Budhipadar.

OPTCL may explain.

2. Splitting of Meramundali 220 kV Bus due to high fault level.

OPTCL vide mail dated 15.09.2021 submitted that the fault level at Meramundali 220 kV bus during steady state is 40.89 kA which is beyond the breaker rating of 40 kA. OPTCL has already conducted the system study. However, ERPC may advise suitable scenario to mitigate the fault level at Meramundali.

OPTCL may explain.

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| ITEM NO. B.8: Procurement of 01 No, 105 MVA, 400/220/33 KV Spare Single phase ICT for Rangpo SS-POWERGRID. |
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400/220/132 KV Rangpo is one of the most important and critical substation of Eastern region – II. It is the gateway between all hydel generations of Sikkim to rest of India. This station has either direct or indirect connectivity with Teesta-III, Teesta-V, Rangit, Dikchu, Tashiding, JLHEP, Rangnichu & Chuzachen.

Total 5 nos. 400/220 KV 315 MVA (3*105MVA) ICT and four nos 220/132KV 100MVA ICTs are present at Rangpo. During hydel, all these ICTs are considerably loaded.

All 400/220/33 KV, 315 MVA units are Single phase units (3 X 105 MVA) and total 15 Units (05 X 03) No's are in service. Overall for total 15 Units only 01 spare units (Cold spare) are earlier considered for Rangpo SS.

Already due to internal problem one unit of ICT-4 has been taken out in August-20 and presently under repairing. Further the only spare has been utilized as Y-Phase of ICT-4 in last year. As the spare unit at Rangpo itself is a cold spare, putting it in the service includes dragging of the unit and afterwards includes complete commissioning activity.

Further, if we go by construction of Rangpo SS it can be seen that, entire SS built in 05 different layers. Even in 400 KV level itself, there are 02 different levels and transportation of spare unit from lower level to higher level itself require complete transportation arrangement as considerable slope is present.

A bird's eye view of Rangpo SS is given for reference:-



Any kind of transport of heavy consignments takes long time due to limited accessibility of road, frequent landslide, non-availability of strong bridges for heavy consignment etc. In case of any element outage, like transformer/Reactor for major repairing works, transportation time is much larger due to all above mentioned constraints.

Reference picture of road conditions around Rangpo and in general Sikkim stretches are given below for reference:-





From above it is very much clear that in case of any major repairing and subsequent Transportation involved it may take enormous time in view of prevailing road conditions. Rather, keeping another spare unit is much preferable for the activity.

In view of the above, to ensure maximum grid availability, to enhance the flexibility towards the beneficiaries, to provide ease operation of grid in critical area, one more spare unit of same capacity is required at Rangpo.

Total financial implications excluding Freight, Insurance and GST is around Rs. 4.50 Crores, as per offer received from OEM.

In view of above, it is proposed for in-principle approval for procurement of 01 No spare single phase, 400/220/33 KV, 105 MVA ICT at Rangpo SS, considering the difficulty for transportation at hilly areas, as Cold Spare to meet any exigency and enhancing reliability of the grid.

Members may discuss.

ITEM NO. B.9: 315 MVA Spare ICT availability after replacement with 500 MVA ICT and their remaining used life in Eastern region for utilization during exigency

In the 15th and 18th Standing committee meeting of Eastern region transformation capacity at various 400/220 kV had been approved with replacement of 315 MVA ICT with 500 MVA ICT. These substations include Patna, Sasaram, Purnea, Malda, Maithon, and any other substations. Many of these spared 315 MVA ICTs have residual life left and may be part of regional spares. There may be spared ICTs which have reached their life and some may have some spare life left and can be used during exigency as observed at 400/220 kV Ranchi substation till new ICTs are in place.

Further, these details are required during discussion of any new ICTs planning at the ERPCTP forum to ensure that spare is being utilized when required in case of any exigency.

Given the above, PGCIL ERTS 1, PGCIL ERTS 2 and Orissa Project may kindly share the 315 MVA spare availability in the Eastern region along with residual life in the given below format. These details will help ERLDC/ERPC during ERPCTP discussion and any requirement being

envisaged due to any contingency arising in the system after due discussion in OCC.

| Present Spare ICT location | ICT no. Rating (MVA, kV) | Spared from which substation and year | Residual life left (Years) | Any movement already planned as per decision in SCM |
|----------------------------|--------------------------|---------------------------------------|----------------------------|---|
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Members may discuss.

ITEM NO. B.10: HTLS reconductoring of 220 kV Patna-Sipara 1 and 2 circuits.

In 2nd ERPCTP BSPTCL informed regarding uneven loading on 220 kV Patna-Sipara T/C line and noncompliance of N-1 criteria, BSPTCL agreed for reconductoring of ckt-1 and ckt-2 of 220 kV Patna-Sipara T/C line. The work will be completed by Feb- 2021 when the loading is low or after the commissioning of Naubatpur 400 kV S/s.

In 3rd ERPCTP, BSPTCL informed that the reconductoring of ckt-1 and ckt-2 of 220 kV Patna-Sipara T/C line will be taken up after commissioning of Jakhanpur and Naubatpur substations (expected by Dec, 2021) as these are feeding critical load connected at Patna. Accordingly, the work will be completed by July 2022. ERLDC stated that these circuits will be non-compliant with N-1 criteria during the summer peak load of 2021 and there could be cascading effect on other circuits. He suggested for implementation of SPS by BSPTCL to safeguard the reliability to meet Patna capital city load.

In 4th ERPCTP, BSPTCL informed that the reconductoring of ckt-1 and ckt-2 of 220 kV Patna-Sipara T/C line will be taken up after commissioning of 400 kV Jakhanpur and Naubatpur substations (expected by Dec 2021) as these are feeding critical load connected at Patna and shutdown will not be available. Accordingly, the reconductoring work is expected to be completed by July 2022.

However, based on the recent update as received during the islanding meeting, 400 kV Naubatpur and Jakkanpur substations commissioning are further delayed and expected by Feb-March 2022.

Therefore, as discussed in the above ERPCTP meetings following actions are envisaged by BSPTCL and BGCL.

1. Concrete plan and early completion of HTLS reconductoring of 220 kV Patna-Sipara 1 and 2 circuits as per 2nd and 4th ERPCTP
2. Status of SPS implementation for overloading of the circuits till HTLS commissioning as per 3rd ERPCTP.
3. Present status of 400/220 kV Naubatpur, Jakkanpur and Bakhtiyarpur substations commissioning and the current timeline for energization.

BSPTCL may update.

ITEM NO. B.11: Monitoring of commissioning of 400/220 kV Patraru substation given increasing load at Capital City Ranchi and N-1 reliability issue of 400/220 kV Ranchi ICTs.

In 2nd-4th ERPCTP meeting and 182nd OCC meeting, N-1 reliability issue of 400/220 kV Ranchi ICTs had been discussed in detail. One 500 MVA ICT at Ranchi has already been approved in 3rd ERPCTP meeting. During the meeting, it was deliberated that 400/220 kV Patraru substation along with its transmission lines (400 kV, 220 kV) are very vital to reduce the loading of Ranchi ICTs.

During 182nd OCC meeting, it was decided to separately conduct a meeting on N-1 reliability issues of Ranchi and the designing of SPS. The meetings were conducted on 1st and 6th Sept 2021 and the associated MoM is also attached. In the meeting, it was informed by JUSNL that the 400/220 kV Patraru substation will be commissioned by Dec 2021.

During the meeting, it was decided that the designed SPS will be implemented and to be reviewed after Dec 2021. Members agreed that in case of any delay in 400/200 kV Patraru commissioning, the SPS review may include load shedding scheme in Ranchi area to avoid any cascaded blackout in the system. It was also agreed that JUSNL should share the update on the commissioning status of 400/220 kV Patraru and the associated transmission system.

JUSNL may kindly share the status of commissioning activities at 400/220 kV Patraru substation as discussed during the SPS meeting.

- 400 kV Patraru-Ranchi D/C
- 400/220 kV Patraru substation along with 2 X 500 MVA ICTs
- 220 kV D/C line for termination of existing PTPS (Old) – Hatia(New) 220 kV D/c line at Patraru (New) to form Patraru(New) – Hatia (New) 220 kV D/c line.
- 132 kV D/c line for termination of existing PTPS (Old) – Hatia (Old) D/C (with one circuit LILO at Kanke) from PTPS (Old) to Patraru (New) to form Patraru(New) – Hatia (Old) D/c line (with one circuit LILO at Kanke)
- Planned shifting schedule of loads from Ranchi ICTs to Patraru ICTs

JUSNL may update.

ITEM NO. B.12: Short term and Long term measures for lines/elements not satisfying N-1 Security criteria

During real time operation it is being observed that many lines from which states draw power from ISTS as well as few lines/elements inside the state network is not satisfying N-1 security criteria. Some short term as well as long term measures to mitigate the contingency was discussed in earlier meetings for few non-compliances:

| SI No | Name of Element not satisfying N-1 security criteria | Short term measure (SPS available or others) | Long term measure planned | Target date for Long term measures |
|-------------------------------|--|--|--|---|
| In BSPTCL Control Area | | | | |
| 1 | 220 kV Muzzafarpur-Hazipur D/C | No SPS | 220 kV Muzaffarpur (PG)-Garaul D/C. 220 kV Amnour-Muzaffarpur D/C. 220 kV Amnour-Digha D/C | Garaul will be commissioned by Dec 2021 |
| 2 | 220 kV Hazipur-Amnour D/C | No SPS | | |
| 3 | 220 kV Darbhanga-Darbhang(BH) D/C | No SPS | | |
| In JUSNL Control Area | | | | |
| 4 | 220 kV Maithon-Dumka D/C | No SPS | 400kV Dumka S/S | |

However, it is observed that the long term measures proposed earlier are getting delayed, thus to mitigate the problem other short term measures needs to be explored.

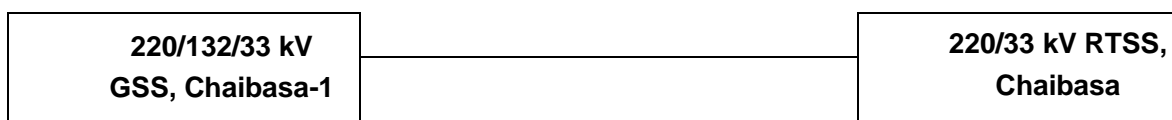
BSPTCL and JUSNL may update.

ITEM NO. B.13: Energization of 220 kV 2 Ph D/C T/L from 220/132/33kVGSS,Ulijhari (Chaibasa-1) (JUSNL)to newly constructed 220/25 kV RTSS Chaibasa

JUSNL vide mail dated 16.09.2021 submitted that seeking permission for charging of 220kV 2 Ph D/C Transmission line from 220/132/33kV GSS Ulijhari (Chaibasa-1) (JUSNL) to newly constructed 220/25kV RTSS Chaibasa.

Also mentioned that, foundation, Erection, Testing & Commissioning work of said transmission line has been done by Railway under supervision of JUSNL.

The Length Transmission Line is 7.39 km.



JUSNL may explain.

PART C: ITEMS FOR UPDATE

ITEM NO. C.1: ER Grid performance during August 2021

The average and maximum consumption of Eastern Region and Max/Min Demand (MW), Energy Export for the month August-2021 were as follows:

| Average Consumption (MU) | Maximum Consumption (MU)/ Date | Maximum Demand (MW) Date/Time | Minimum Demand(MW) Date/Time | Schedule Export (MU) | Actual Export (MU) |
|--------------------------|--------------------------------|---------------------------------|--------------------------------|----------------------|--------------------|
| 492.6 | 510.5 MU, 25-08-2021 | 23737 MW, 14-08-2021 21:15 Hrs. | 16859MW, 29-08-2021 16:38 Hrs. | 3727 | 3664 |

ERLDC may present performance of Eastern Regional Grid.

ITEM NO. C.2: Performance of Primary frequency response of ER generating units

C2.1. Frequency response characteristics (FRC) have been analyzed pan India for one event of sudden frequency change that occurred in August 2021.

The details of this event and the overall response of the Eastern region have been summarized in following table.

| Event | Frequency Change | ER FRC |
|---|--|--------|
| Event 1: On 06 th August 2021 at 10:42:10:360 Hrs, 1230 MW generation loss at SEIL in SR. | 50.02 Hz to 49.92 Hz. Later stabilized at 49.99 Hz. | 72 % |
| Event 2: On 15 th August 2021 at 10:05:49:800 hrs, 1100 MW generation loss at Bhadla in NR | 49.97 Hz to 49.87 Hz. Later stabilized at 49.92Hz. | 14 % |
| Event 3: On 22 nd August 2021 at 19:44:20 Hrs, around 1400 MW generation loss at Karcham Wangtoo in NR | 50.03 Hz to 49.90 Hz. Later stabilized at 49.99 Hz. | 64 % |
| Event 4: On 26 th August 2020 at 11:13:18:040 Hrs, 1402 MW solar generation loss at Bhadla in NR | 49.891 Hz to 49.736 Hz. Later stabilized at 49.751 Hz. | 26 % |

Summary of the response of regional generating stations/SLDCs are given in following table.

| Generating Station/ SLDC | Event 1 | Event 2 | Event 3 | Event 4 |
|--------------------------|---------|---------|---------|---------|
| NTPC Farakka | | | | |
| NTPC Kahalgaon | | | | |
| NTPC Talcher | | | | |
| NTPC Barh | | | | |
| NTPC Darlipalli | | | | |
| BRBCL | | | | |
| NPGC Nabinagar | | | | |
| GMR | | | | |
| JITPL | | | | |
| MPL | | | | |
| Adhunik | | | | |
| Teesta V HEP | | | | |
| Teesta III HEP | | | | |
| Dikchu HEP | | | | |

| | | | | |
|----------------|--|--|--|--|
| Bihar SLDC | | | | |
| Jharkhand SLDC | | | | |
| DVC SLDC | | | | |
| GRIDCO SLDC | | | | |
| WB SLDC | | | | |

| | |
|--|---|
| | Satisfactory response |
| | Non Satisfactory response |
| | Mixing response |
| | Unit was being run at or more than MCR due to water spillage condition |

Generator end data/FRC are yet to be received from following generating stations/SLDCs (Status as on 12-09-2021)

| Generating Station/ SLDC | Event 1 | Event 2 | Event 3 | Event 4 |
|---------------------------------|----------------|----------------|----------------|----------------|
| NTPC Farakka | | | | |
| NTPC Darlipalli | | | | |
| NPGC Nabinagar | | | | |
| Bihar SLDC | | | | |
| Jharkhand SLDC | | | | |
| WB SLDC | | | | |

| | | | |
|--|----------------------|--|--------------------------------|
| | Data received | | Data yet to be received |
|--|----------------------|--|--------------------------------|

Reason for non-sharing of generator end data/FRC may be shared.

C2.2 Meeting to discuss the performance of the primary frequency response of state generating units and frequency response characteristics of state control area.

To review the performance of primary frequency response of state generating units and frequency response characteristics of state control area for various frequency events, a meeting has been held under the chairmanship of MS ERPC on **31-08-2021**. During this meeting, the following issues have been surfaced out:

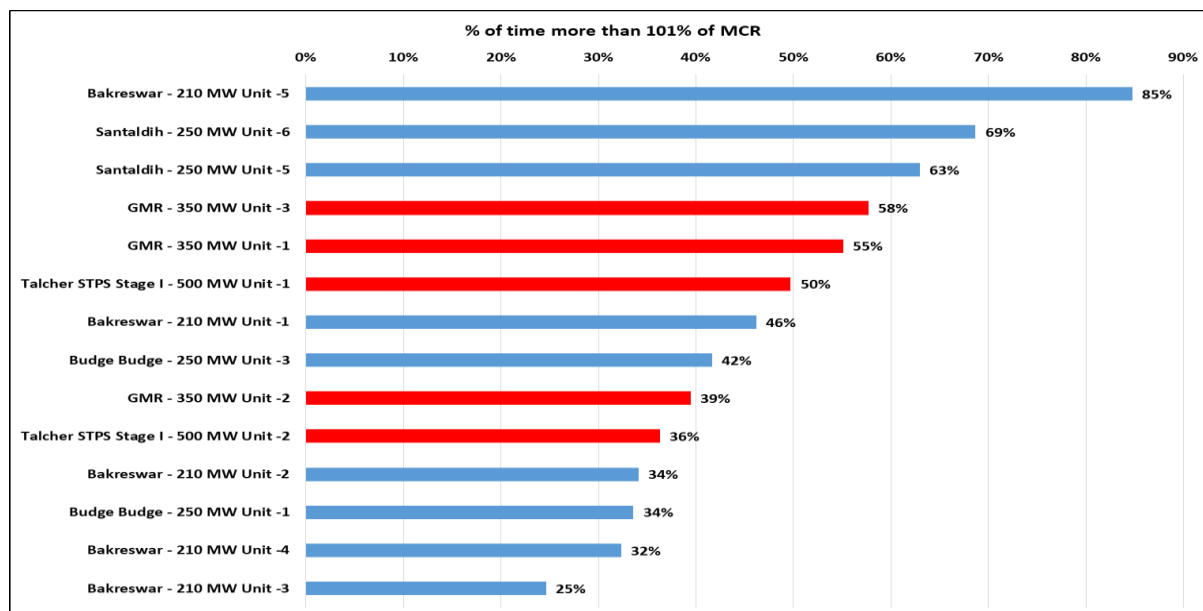
- Representative from WBSLDC, DPL, PPSP, GMR TPS & Sterlite TPS did not attend the meeting. It is further noted that no representative was nominated from WBSLDC for dealing with primary frequency control of WB state control areas in spite of repeated persuasion in OCC meeting. WBPDCCL to share action plans to be taken to improve the performance of generating units.
- Few generating units are being run at more than MCR during the event. Those units could not provide adequate primary frequency response due to unavailability of PFR margin. Though ERLDC highlighted issue of over injection by generating units in various meeting, over injection more than MCR has been observed in August 2021 at 14 thermal generating units with more than 210 MW capacity as per ERLDC SCADA data.
- It was advised to conduct such types of meeting in periodic basis so that actions to be taken by generating stations can be monitored.

WBSLDC may closely monitor the primary frequency response of their generating units. One/two persons may be nominated by WBSLDC for coordinating primary frequency response.

Members may note.

ITEM NO. C.3: Running Generating units at more than MCR

Since 180th ER OCC meeting, ERLDC highlighted the issue of over injection by generating units at more than MCR at every OCC meeting. Due to running unit at more than MCR, margin for primary frequency response gets exhausted and machine cannot provide sufficient primary frequency response during the event of sudden frequency change. As per ERLDC SCADA data, following thermal generating units generated at more than 101% of MCR (1% margin is considered to offset SCADA measurement error) for significant amount of time during August 2021.



■ Observed in this month ■ Observed in previous months also

Generation duration curve for above mentioned generating stations as per ERLDC SCADA data are shown in **Annexure-C3**. Vide email dated 03rd September 2021 and 06th September 2021, WBSLDC/WBPDCL/CESC, GMR/Odisha SLDC, Talcher STPS & GMR have been requested have been advised to avoid over injection in order to maintain margin for PFR. Issue of over injection at Talcher STPS and GMR TPS is being highlighted since 180th OCC meeting.

ITEM NO. C.4: Review of implementation of PSDF approved projects of ER.

In 10th NPC meeting held on 09.04.2021, RPCs were advised take up the matter for improvement of the fund disbursement and expeditious implementation of the sanctioned projects under PSDF.

In view of the above, status review of the projects being executed under PSDF funding in Eastern Region would be carried out on regular basis for expediting the projects. All the constituents are requested to furnish/update the status of their respective project in every month.

Concerned utilities may update the present status of the project as given in the **Annexure-C4**.

Members may update.

ITEM NO. C.5: Status of implementation of AGC as a pilot project in States.

In 42nd TCC, DVC intimated that AGC shall be implemented in unit 7 and 8 of Mejia as per the given schedule by 31st July 2020.

WBPDCCL informed that they have already collected offer from Siemens for implementation of AGC and they are awaiting the concurrence from SLDC.

SLDC, WB informed that they are not in a position to implement AGC unless a clear direction is given by WBERC. Further, implementation of intra state DSM is a prerequisite for implementation of AGC in the states.

It was decided to request CERC to include this as an issue in the Agenda for discussion in the meeting of Forum of Regulators.

In 169th OCC Meeting, SLDC DVC informed that due to COVID-19 pandemic, participation in the tender was very less therefore they are floating a new tender for implementation of AGC. AGC would be implemented by Feb 2021.

Odisha informed that they could not visit Barh NTPC and NLDC due to ongoing COVID 19 pandemic situation.

OCC advised SLDC Odisha and OPGC to interact with Barh NTPC & ERLDC to get the technical specifications & the procedure for implementation of AGC.

| State | Station/Unit | Deliberation in 182 nd OCC Meeting |
|-------------|-------------------------|--|
| DVC | Mejia unit#7 &8 | DVC representative informed that NIT is to be floated. |
| West Bengal | Unit-5 of Bakreswar TPP | OCC referred it to next TCC meeting. |
| Odisha | Unit#3 of OPGC | OPGC representative submitted that PO would be issued to M/s Siemens by 27 th August'2021. He further informed that shutdown for the Unit#3 would be taken during the month of Oct'21 and AGC would be implemented during that period.. |

Members may update.

ITEM NO. C.6: Primary Frequency Response Testing of ISGS Generating Units

In the 180th OCC meeting, ERLDC representative informed that as per communication received from GMR and JITPL PFR testing has been scheduled by Siemens in August'21.

MPL representative submitted that they would carry out the PFR testing in the month of July'21.

In the 181st OCC meeting, ERLDC representative informed that PFR testing of MPL got postponed due to some technical issue. He further informed that PFR testing is going on in APNRL and that of NPGC and BRBCL is scheduled in the last week of July'21 and 1st week of August'21 respectively.

In the 182nd OCC meeting, ERLDC representative submitted that During July – August 2021, PFR testing has been conducted at the following generating units:

1. Adhunik TPS Unit 1 & 2
2. BRBCL TPS Unit 2 & 3
3. Nabinagar STPS Unit 1
4. Kahalgaon STPS Unit 1

The status of the testing schedule for the generators is enclosed at **Annexure-C6**.

Members may update.

ITEM NO. C.7: Testing of Primary Frequency Response of State Generating units by third party agency.

In the 171st OCC Meeting, OCC advised all the SLDC's to prepare the action plan for their state generators and submit the details to ERPC and ERLDC at the earliest.

DVC vide-mail dated 6th Oct 2020 informed that the Primary Frequency Response Testing may be carried out for the following generating units:

| Sl. No. | Name of the Units | Capacity (MW) |
|---------|--------------------|---------------------------|
| 1 | BTPS-A | 500 |
| 2 | CTPS Unit #7&8 | 2X250 |
| 3 | DSTPS Unit#1&2 | 2X500 |
| 4 | KTPS Unit # 1&2 | 2X500 |
| 5 | MTPS Unit # 3 to 8 | 2 X 210 +2 X 250 + 2X 500 |
| 6 | RTPS Unit # 1 & 2 | 2 X 600 |

In the 181st OCC meeting, WBPDCCL representative submitted that they had received budgetary offer from M/s Siemens and M/s Solvina. Subsequently they had raised some queries to M/s Solvina in this regard. After getting the response they would be in a position to place the order.

SLDC, Jharkhand representative submitted that no update has been received from Tenughat. OCC advised SLDC, Jharkhand to collect the necessary details and intimate ERPC and ERLDC at the earliest.

DVC representative submitted they would update the details by 22nd July'21.

OHPC representative informed that response of some financial queries is yet to be received from Solvina and after getting the response they would place the order by August'21.

In the 182nd OCC meeting, WBPDCCL representative submitted that they had taken the budgetary offer from Siemens and Solvina and the same is in process for administrative approval. PO would be issued to the selected party after getting the necessary approval.

Jharkhand representative submitted that no update has been obtained from Tenughat in this regard.

DVC representative submitted that the Indent for this work had been placed in April'21 and they are in the process for floating the NIT.

OHPC representative submitted that the order would be issued to M/s Solvina by 1st week of September'2021.

Members may update.

ITEM NO. C.8: PSS tuning of Generators in Eastern Region.

The PSS tuning activity is mandatory in line with IEGC and CEA regulations. The Procedure of PSS tuning for helping utilities in getting this activity carried out has been approved in 171st OCC Meeting and shared with all concerned utilities.

In the 182nd OCC meeting, WBPDC representative informed that PSS tuning for Sagardighi unit#2 PSS tuning had been done on 21st Aug'21. OCC advised WBPDC to share the report of the same to ERLDC & ERPC.

CESC representative submitted that PSS tuning for Budge Budge unit#1 & 2 was done on 16th & 17th Aug'21 respectively.

ERLDC representative informed that PSS tuning for Mejia unit#4, Mangdechu unit#3 & 4, DPL unit#7 and Kahalgaon unit#2 was done satisfactorily. However PSS tuning for APNRL was not successful.

DGPC Bhutan representative submitted that for Chuka, Tala and Mangdechu they had shared their report to ERPC.

The updated schedule for PSS tuning of the units is attached at **Annexure-C8**.

Members may update.

ITEM NO. C.9: Status of UFRs healthiness installed in Eastern Region.

Members may update the status of UFR healthiness installed in Eastern Region.

ITEM NO. C.10: Status of Islanding Schemes healthiness installed in Eastern Region.

As per the decision taken in the meeting held on 8th July 2021 and chaired by member (GO&D), CEA, data in prescribed formats may be submitted by concerned utilities to RPCs on monthly basis to certify the healthiness of the Islanding Schemes.

a. Format - I for RLDC/SLDCs

| S.NO | Name of Islanding Scheme | Healthiness of Communication channel |
|------|--------------------------|--------------------------------------|
| | | |

b. Format - II for Generating Station

| S.NO | Name of Islanding Scheme | Healthiness of Islanding Relay | Healthiness of Communication channel |
|------|--------------------------|--------------------------------|--------------------------------------|
| | | | |

c. Format - III for Transmission Utility/DISCOMs

| S.NO | Name of Islanding Scheme | Elements considered for tripping to from Island | For communication based tripping logic of feeders | For UFR based tripping logic of feeders | |
|------|--------------------------|---|---|--|-----------------------|
| | | | Healthiness of Communication channel | Healthiness of PT Fuse and status of DC supply to UFR relay* | Healthiness of Relay# |
| | | | | | |

* Where dedicated UFR relay have been installed for tripping of the feeders under islanding scheme.

Where UFR functions have been enabled within backup protection relay of the line.

d. Format - IV for collecting Relay details of the Islanding scheme.

The following format may be used to get Relay details of the Islanding scheme:

| S.NO | Description | UFRs-for load relief (A) | df/dt -for load relief (B) | Relay for Island creation(C) |
|------|--|--------------------------|----------------------------|------------------------------|
| 1 | Relay location (S/s name) | | | |
| 2 | Relay make & model | | | |
| 3 | Frequency setting of the relay (at which load shedding is envisaged) | | | |
| 4 | Feeder name (voltage level and source-destination name) signaled by the Islanding Relay for separation /load shedding/separation from outside grid | | | |

| | | | | |
|---|--|--|--|--|
| 5 | Quantum of load relief due to tripping of feeder (as per state's peak of previous year) | | | |
| 6 | Quantum of load (Min, Avg, Max in MW) on the feeder (as per state's peak of previous year) | | | |

e. Format - V for Contact details of all Nodal Officers

| Utility Name & Location | Name | Designation | Organization | Email ID | Mobile No. |
|-------------------------|------|-------------|--------------|----------|------------|
| | | | | | |

Members may update.

ITEM NO. C.11: Status for monitoring of commissioning/restoration of important elements.

| Sl. No | Name of Element | Requirement | Original Target Date | Expected Date | Reason for Delay (if any) |
|--------|---|--|--|---------------|---------------------------|
| 1 | 400/132 kV ICT 3 and 4 at Kahalgaon-B | Due to non-commissioning of these two ATRs bus splitting at Kahalgaon Cannot be operationalized. Thus putting system in danger | In the 163 rd OCC meeting held on 15 th Nov 2019, NTPC was advised to expedite installation of ICT 3 and 4 | | |
| 2 | Shifting of 315 MVA ICT-1 from Durgapur B to Durgapur A | Due to non-shifting of this ICT bus splitting at Durgapur cannot be operationalized. Thus putting system in danger | 12 Month, was allocated under RTM vide MoP OM dated 25.09.2020 | | |
| 3 | Restoration of 66 kV Melli-URHP D/C line | For providing alternative source to Gangtok | To be decided | | |
| 4 | Shifting of 315 MVA Spare ICT from New Duburi to Meramandali | Reliability of power supply to Meramandali | Oct-21 | | |
| 5 | Commissioning and Charging of 315 MVA ICT at Motihari | Reliability of power supply at Motihari | ICT already charged once but at present kept out of service | | |
| 6 | Commissioning of 220 kV Tenughat-Govindpur D/C | Reliable power supply to Govindpur | Sep-21 | | |
| 8 | 400/220 kV Substation at Patratu with associated 400kV and 220 kV lines | Decongestion of 400/220 kV ICTs at Ranchi | March-22 | | |
| 9 | 400/220 kV ICT-3 at Bidhannagar | Closing of 220 kV DSTPS-Waria D/C along | Dec-21 | | |

| | | | | | |
|----|---|---|--|--|--|
| | | with opening of 220 kV Waria-Bidhannagar D/C | | | |
| 10 | 400/220 kV Substation at Raghunathpur TPS along with associated 220 kV lines | For reliability of 220 kV system of DVC and decongestion of 400 kV Raghunathpur-Maithon line | Dec-22 | | |
| 11 | 400/220 kV Substation at Mejia-B TPS along with associated 220 kV lines | For reliability of 220 kV system of DVC | Dec-22 | | |
| 12 | 400/220 kV Substation at Jakkanpur along with all 400 kV and 220 kV connections | More reliable supply to Patna and decongestion of 220 kV Patna-Sipara line. Also associated with Patna Islanding Scheme | Dec-21 | | |
| 13 | 400/220 kV Substation at Saharsa | Reliable reliability of power supply to Bihar. | Substation Commissioned, downstream network status to be confirmed | | |
| 14 | 400 kV Meramandali-B | Reducing fault level at 400 kV Meramandali | Sep-21 | | |
| 15 | 125 MVAR Bus Reactor at New Chanditala, Kharagpur, Bidhannagar and Gokarna | Mitigating High voltage problem during low load condition | Dec, 2021 | | |
| 16 | 2x125 MVAR bus reactor at New PPSP | Mitigating High voltage problem during low load condition | Aug 2022 | | |

Members may update.

ITEM NO. C.12: Transfer capability determination by the states.

Latest status of State ATC/TTC declared by states during the month of Dec-2021

| SI No | State/Utility | TTC (MW) | | RM(MW) | | ATC Import (MW) | | Remark |
|-------|---------------|----------|--------|--------|--------|-----------------|--------|--------|
| | | Import | Export | Import | Export | Import | Export | |
| 1 | BSPTCL | 5000 | -- | 100 | -- | 4900 | -- | Nov-21 |
| 2 | JUSNL | 1460 | -- | 57 | -- | 1403 | -- | Nov-21 |
| 3 | DVC | 1458 | 2838 | 61 | 48 | 1397 | 2790 | Oct-21 |
| 4 | OPTCL | 2437 | 1412 | 85 | 59 | 2352 | 1360 | Nov-21 |
| 5 | WBSETCL | 5256 | -- | 450 | -- | 4806 | -- | Oct-21 |
| 6 | Sikkim | 189 | -- | 2.6 | -- | 186.4 | -- | Nov-21 |

Declaration of TTC/ATC on SLDC Website:

| Sl. No | SLDC | Declared on Website | Website Link | Constraint Available on Website | Type of Website Link |
|--------|---------|---------------------|---|---------------------------------|------------------------|
| 1 | BSPTCL | Yes | http://www.bsptcl.in/ViewATCTTCWeb.aspx?GL=12&PL=10 | Yes | Static Link-Table |
| 2 | JUSNL | Yes | http://www.jusnl.in/pdf/download/ttc_atc_nov_2020.pdf | Yes | Static link –pdf file |
| 3 | DVC | Yes | https://application.dvc.gov.in/CLD/atcttcmenu.jsp# | Yes | Static Link-Word file |
| 4 | OPTCL | Yes | https://www.sldcorissa.org.in/TTC_ATC.aspx | Yes | Static Link-pdf file |
| 5 | WBSETCL | Yes | http://www.wbsldc.in/atc-ttc | No (Not updating) | Static Link-Table |
| 6 | SIKKIM | No | https://power.sikkim.gov.in/atc-and-ttc | No (Not updating) | Static Link-Excel file |

It is necessary to highlight that the ATC/TTC declaration on website need to be updated in timely manner. It is suggested that along with PDF copies, a tabular format may also kindly be provided so that it can be utilized for preparing ERLDC portal on State ATC/TTC. In addition, ATC/TTC may be declared three months in advance and periodically reviewed based on any shutdown causing leading to any constraint.

Further it is observed that for some of the states N-1 security criteria is not satisfied for few lines at declared ATC/TTC Value. To discuss the issue in detail a separate meeting with individual SLDC is proposed.

Members may update.

ITEM NO. C.13: Mock Black start exercises in Eastern Region

Mock black start date for financial year 2021-22 is as follows:

| Sl. No | Name of Hydro Station | Schedule | Tentative Date | Schedule | Tentative Date |
|--------|-----------------------|-------------------------|----------------|---------------------------|----------------|
| | | Test-I | | Test-II | |
| 1 | U. Kolab | Last week of Oct 2021 | | Second Week of Feb 2022 | |
| 2 | Balimela | Second week of Nov 2021 | | First Week of March 2022 | |
| 3 | Rengali | Second week of Nov 2021 | | First 2week of March 2022 | |
| 4 | Burla | Second week of Nov 2021 | | First Week of March 2022 | |
| 5 | U. Indravati | Last week of Oct 2021 | | Second Week of Feb 2022 | |
| 6 | Maithon | Third Week of Nov 2021 | | First Week of March 2022 | |

| | | | | | |
|----|--------------|----------------------------------|--|--------------------------|--|
| 7 | TLDP-III | Second week of Nov 2021 | | Second Week of Feb 2022 | |
| 8 | TLDP-IV | Third Week of Nov 2021 | | First Week of March 2022 | |
| 9 | Subarnarekha | Second week of Nov 2021 | | Second Week of Feb 2022 | |
| 10 | Teesta-V | Third Week of Nov 2020 | | Third Week of March 2022 | |
| 11 | Chuzachen | Done on 9 th April'21 | | First Week of March 2022 | |
| 12 | Teesta-III | Third Week of Nov 2021 | | First Week of March 2022 | |
| 13 | Jorethang | Third Week of Nov 2021 | | First Week of March 2022 | |
| 14 | Tasheding | Second week of Nov 2021 | | First Week of March 2022 | |
| 15 | Dikchu | Second week of Nov 2021 | | Second Week of Feb 2022 | |

In the 179th OCC meeting, ERLDC submitted that Chuzachen had done the Mock Black Start on 9th April 2021.

In the 180th OCC meeting, ERLDC representative informed that they have not received any further update on Mock Black Start.

Odisha representative submitted that they have not started the Mock Black Start due to ongoing Covid-19 Vaccination drive.

In the 181st OCC meeting, SLDC, Jharkhand representative submitted that they would go for Mock Black Start in the 2nd week of August '21. ERLDC representative advised Jharkhand to give prior intimation regarding the Mock Black Start.

SLDC, Odisha representative informed that they would go for Mock Black Start of Balimela in the 2nd week of August '21.

In the 182nd OCC meeting, OPGC representative submitted that Mock Black Start had been done for Rangali on 18th August'21 and they would go for Mock Black Start of Balimela in Sept'21.

Jharkhand representative submitted that they would take up Mock Black Start after Sept'21.

OCC advised the concerned utilities to give prior intimation to ERLDC and ERPC regarding Mock Black Start.

Members may update.

PART D: OPERATIONAL PLANNING

ITEM NO. D.1: Anticipated power supply position during October 2021

The abstract of peak demand (MW) vis-à-vis availability and energy requirement vis-à-vis availability (MU) for the month of September 2021 were prepared by ERPC Secretariat on the basis of LGBR for 2021-22 and feedback of constituents, keeping in view that the units are available for generation and expected load growth etc. is enclosed at **Annexure-D1**.

Members may update.

ITEM NO. D.2: Shutdown proposal of generating units for the month of October 2021

Generator unit shutdown schedule for October' 2021 is given in the table:

| Proposed Maintenance Schedule of Thermal Generating Units of ER during 2020-21 in the month of Oct'2021 (as finalised in LGBR meeting for 2020-21) | | | | | | | |
|---|---------|------|---------------|------------------------------|------------|-------------|---------------------------|
| System | Station | Unit | Capacity (MW) | Period (as per LGBR 2020-21) | | No. of Days | Reason |
| | | | | From | To | | |
| NTPC | NPGC | U-1 | 660 | 17.10.2021 | 16.01.2022 | 92 | AOH + Boiler Modification |

NTPC may update.

ITEM NO. D.3: Major Generating Units/Transmission Element outages/shutdown in ER Grid (as on 08.09.2021)

a) Thermal Generating Stations outage report:

| Sl. No | Station | State | Agency | Unit No. | Capacity in Mw | Reason(s) | Outage Date |
|--------|-------------------|-------------|--------------|----------|----------------|---------------------|-------------|
| 1 | ADHUNIK | JHARKH AND | APNRL | 1 | 270 | ANNUAL OVERHAULING | 13-Aug-2021 |
| 2 | FSTPP | WEST BENGAL | NTPC | 1 | 200 | ANNUAL OVERHAULING. | 11-Jul-2021 |
| 3 | FSTPP | WEST BENGAL | NTPC | 4 | 500 | ANNUAL OVERHAULING | 23-Aug-2021 |
| 4 | KBUNL | BIHAR | NTPC, BSPHCL | 1 | 195 | ANNUAL OVERHAULING | 22-Aug-2021 |
| 5 | KHSTPP | BIHAR | NTPC | 7 | 500 | ANNUAL OVERHAULING | 08-Aug-2021 |
| 6 | NABINAGAR(BRBCL) | BIHAR | NTPC | 1 | 250 | ANNUAL OVERHAULING | 23-Aug-2021 |
| 7 | BAKRESHWAR | WEST BENGAL | WBDCL | 1 | 210 | ANNUAL OVERHAULING | 07-Sep-2021 |
| 8 | DPL | WEST BENGAL | WBDCL | 7 | 300 | ANNUAL OVERHAULING | 14-Aug-2021 |

| | | | | | | | |
|----|-----------------|-------------|--------|---|-----|---|-------------|
| 9 | KOLAGHAT | WEST BENGAL | WBDCL | 1 | 210 | ESP R & M | 07-Jun-2018 |
| 10 | MUZAFFARPUR TPS | BIHAR | BSPHCL | 1 | 110 | COMPLETION OF TENURE OF PPA | 08-Sep-2021 |
| 11 | MUZAFFARPUR TPS | BIHAR | BSPHCL | 2 | 110 | COMPLETION OF TENURE OF PPA | 08-Sep-2021 |
| 12 | BARAUNI TPS | BIHAR | BSPHCL | 6 | 110 | ABNORMAL TSI PARAMETER | 17-Mar-2021 |
| 13 | BARAUNI TPS | BIHAR | BSPHCL | 7 | 110 | GENERATOR TRANSFORMER PROBLEM | 16-Aug-2021 |
| 14 | BARAUNI TPS | BIHAR | BSPHCL | 9 | 250 | PROBLEM IN GT | 17-Jun-2021 |
| 15 | BOKARO'B' | DVC | DVC | 3 | 210 | INITIALLY OUT DUE TO ASH PONDAGE PROBLEM UPTO 31/12/21. LATER OUT DUE TO POLLUTION CLERANCE ISSUE | 21-Oct-2020 |
| 16 | KOLAGHAT | WEST BENGAL | WBDCL | 2 | 210 | ESP & ASH HANDLING R & M | 26-Jun-2021 |
| 17 | MEJIA TPS | DVC | DVC | 2 | 210 | STATOR EARTH FAULT | 13-Jul-2021 |
| 18 | SAGARDIGHI | WEST BENGAL | WBDCL | 1 | 300 | BOILER TUBE LEAKAGE | 19-Aug-2021 |
| 19 | STERLITE | ODISHA | SEL | 4 | 600 | DUE TO PROBLEM IN AIR PREHEATER HEATER | 05-Sep-2021 |
| 20 | TENUGHAT | JHARKH AND | TVNL | 1 | 210 | BOILER TUBE LEAKAGE | 08-Jul-2021 |
| 21 | TENUGHAT | JHARKH AND | TVNL | 2 | 210 | BOXED UP DUE TO BTL IN RE-HEATER | 08-Sep-2021 |
| 22 | WARIA TPS | DVC | DVC | 4 | 210 | CONDENSOR REPAIRING | 06-Jul-2021 |

All Generating stations are requested to update expected restoration time and reason outage to ERLDC/ERPC on weekly basis in case of any change at their end.

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

b) Major Generating stations Out on Reserve Shutdown due to low system demand:

| S.No | Station | State | Agency | Unit No. | Capacity in Mw | Reason(s) | Outage Date |
|------|---------|-------|--------|----------|----------------|-----------|-------------|
| NIL | | | | | | | |

c) Hydro Unit Outage Report:

| Sl. No. | Station | State | Agency | Unit No | Capacity | Reason(s) | Outage |
|---------|---------------------|--------|--------|---------|----------|--|-------------|
| 1 | BALIMELA HPS | ODISHA | OHPC | 1 | 60 | R & M WORK | 05-Aug-2016 |
| 2 | BALIMELA HPS | ODISHA | OHPC | 2 | 60 | R & M WORK | 20-Nov-2017 |
| 3 | BURLA HPS HIRAKUD I | ODISHA | OHPC | 5 | 37.5 | R & M WORK | 25-Oct-2016 |
| 4 | BURLA HPS HIRAKUD I | ODISHA | OHPC | 6 | 37.5 | R & M WORK | 16-Oct-2015 |
| 5 | RENGALI HPS | ODISHA | OHPC | 3 | 50 | DUE TO HEAVY OIL LEAKAGE FROM SUMP TAK | 19-Jul-2021 |

It is seen that about 245 MW hydro capacities in Odisha is under forced outage / planned outage and therefore not available for providing the much-needed peaking support during evening peak. SLDC / OHPC may please indicate restoration plan of the units.

SLDC / OHPC may please indicate restoration plan of the units.

d) Long outage report of transmission lines:

| SL NO | Transmission Element / ICT | Agency | Outage DATE | Reasons for Outage |
|-------|---|--------------|-------------|---|
| 1 | 400 KV IBEUL JHARSUGUDA D/C | IBEUL | 29.04.2018 | Tower collapse at loc 44,45 |
| 2 | 220/132 KV 100 MVA ICT II AT LALMATIA | FSTPP/JU SNL | 22.01.2019 | Failure of HV side breaker |
| 3 | 220 KV PANDIABILI - SAMANGARA D/C | OPTCL | 03.05.2019 | 49 nos of tower collapsed. As reported by SLDC OPTCL, total 60 nos of tower in between 220kV Pandiabili – Samangara line in which 48 nos towers fully damaged and 12 nos towers partially damaged. Work under progress. Presently charged from Pandiabili end (loc 156) to loc 58 |
| 4 | 220KV BARAUNI-HAJIPUR CKT-1 | BSPTCL | 28.09.2019 | Tower collapse at location 38 & 39. Ckt-2 is on ERS since 13.01.2020. |
| 5 | 220/132 KV 100 MVA ICT 3 AT CHANDIL | JUSNL | 30.04.2020 | ICT burst and damaged after fire reported |
| 6 | 220KV/132 KV 100 MVA ICT 4 AT RANGPO | PGCIL | 08.04.2021 | Hand Tripped after tripping of all 400/220 ICTS at Rangpo on 8.4.21 after disturbance and thereafter developed relay reset problem. |
| 7 | 400KV/220KV 315 MVA ICT 2 AT MEERAMANDALI | OPTCL | 21.02.2021 | Fire hazard |
| 8 | 400KV/220KV 315 MVA ICT 4 AT JEERAT | WBSETCL | 09.04.2021 | Tripped on differential and PRD protection operated. |
| 9 | 220KV-FSTPP-LALMATIA-1 | JUSNL | 21.04.2021 | Three tower collapsed near Lalmatia |
| 10 | 400KV-BINAGURI-TALA-1 | PGCIL | 04.06.2021 | Binaguri: B-N, FC- 2.035 KA, FD- 174.7 Km; TALA: B-N, FC- 1.12 KA, FD- 85.4 km; Later taken emergency S/D on 07-06-21 10:07Hrs to attend burnt marks observed in the XLPE cable termination. |
| 11 | 400KV/220KV 315 MVA ICT 4 AT RANGPO | PGCIL | 24.08.2022 | High acetylene C ₂ H ₂ content (23) against Powergrid accepted limit has observed in 315MVA 400/220KV Y ph of ICT |

Transmission licensees/ Utilities are requested to update expected restoration date & work progress regarding restoration regularly to ERLDC/ERPC on monthly basis by 5th of each month so that status of restoration can be reviewed in OCC. Utilities are also requested to update outage of any elements within their substation premises like isolator/breaker to ERLDC/ERPC regularly. (Reported as per Clause 5.2(e) of IEGC).

Members may update.

ITEM NO. D.4: Commissioning of new units and transmission elements in Eastern Grid in the month of August-2021

The details of new units/transmission elements commissioned in the month of August-2021 based on the inputs received from beneficiaries:

| Monthly commissioning List of Transmission element and generators: August 2021 | | | | | |
|--|----------|---|------------|-------|--|
| SL. No | Location | Owner/Unit Name | Date | Time | Remarks |
| 1 | OPTCL | 132 kV BARIPADA-BANGIRPOSHI-2 | 14.08.2021 | 14:36 | IDLE CHARGED FROM BANGIRPOSHI END UP TO GANTRY OF BARIPADA |
| 2 | DVC | 220 kV-RANCHI-RAMGARH-1 | 21.08.2021 | 14:55 | |
| 3 | DVC | 220 kV-RANCHI-MTPS(DVC)-1 | 24.08.2021 | 13:59 | ANTI-THEFT CHARGED UP TO 57.9 KM FROM RANCHI END. |
| 4 | PGCIL | 50 MVAR LINE REACTOR OF 400 KV MAITHON-GAYA 1 | 28.08.2021 | 20:06 | LR REPLACED WITH NATURAL ESTER OIL REACTOR KEEPING RATING SAME |
| 5 | NKTL | 220 kV TRANSFER BUS COUPLER BAY AT DHANBAD (NKTL) | 02.08.2021 | 15:29 | |
| 6 | NKTL | 220 kV BUS COUPLER BAY AT DHANBAD | 02.08.2021 | 15:04 | |

Members may update.

ITEM NO. D.5: UFR operation during the month of August 2021

Frequency profile for the month as follows:

| Month | Max | Min | Less IEGC Band (%) | Within IEGC Band (%) | More IEGC Band (%) |
|-----------|---------------------------------------|--------------------------------------|--------------------|----------------------|--------------------|
| | (Date/Time) | (Date/Time) | | | |
| Aug, 2021 | 50.22 Hz, 01-08-2021 13:06 Hrs. | 49.53 Hz, 26-08-2021 19:18 Hrs | 7.68 | 76.92 | 15.40 |

Hence, no report of operation of UFR has been received from any of the constituents.

Members may note.



**Odisha
Coal and
Power
Limited**

Odisha Coal and Power Limited
(A Government of Odisha Company)
CIN U10100OR2015SGC018623
Website: www.ocpl.org.in

Letter No: OCPL/ 632
Date: 07-09-2021

To
The Member Secretary,
Eastern Regional Power Committee,
14, Golf Club Road, Tollygunge,
Kolkata, 700033.

Sub: - Approval of drawl and metering scheme for power supply connectivity to Odisha Coal & Power Limited (OCPL) from NTPC's Darlipali STPP Substation.

Ref: -1. GRIDCO letter no DC-120/2010 (Vol- IX) – 468 (9) dated 15/01/2016 (Copy enclosed)
2. WESCO letter no WESCO/Com- 221 (4) dated 01/02/2016 (Copy enclosed)
3. NTPC letter no 01:CD:453 A dated 01/03/2016 (Copy enclosed)
4. Letter dated 16/08/2016 of Ministry of Power (GoI) (Copy enclosed)
5. MoU executed with NTPC on 30/03/2017 for construction of 2 nos of additional 132/33 KV bays at the substation of Darlipali STPP
6. WESCO letter no WESCO/Com/PS/ RKL2-New-2019- 647 (8) dated 14/08/2019 (Copy enclosed)
7. Minutes of 19th Meeting of Standing Committee of Power system planning of Eastern Region held on 01/09/2017 (Copy enclosed)

Sir,

In inviting reference to subject cited above, we would like to draw your kind attention to the below mentioned facts.

1. Odisha Coal and Power Limited (OCPL) is a Govt. of Odisha Joint Venture Company of Odisha Power Generation Corp. Ltd. (OPGC) & Odisha Hydro Power Corp. Ltd. (OHPC) with a shareholding ratio of 51:49. The Manoharpur & Dip-side Manoharpur coal blocks have been allotted to OCPL by the Nominated Authority, Ministry of Coal (MoC), GoI on 31st August 2015 to supply coal exclusively to OPGC expansion power plant (4X660 MW) at Ib TPS. These coal blocks are situated in IB-Valley coalfields in the district of Sundargarh, Odisha. The extraction of coal from Manoharpur coal mine has already been commenced. Further, the construction work of 8 MTPA Coal Handling Plant is in advanced stage for transportation of coal to Ib TPS through Merry go Round rail line.
2. For meeting the operational requirement of above coal mines, 15 MVA power has been envisaged. It has been agreed and planned during the year 2015 and 2016 to source this power at 33 KV level from the 765/132/33 KV Substation of NTPC's Darlipali STPP, which is the nearest and most reliable power source.

3. Accordingly, OCPL applied for this connectivity to the DISCOM i.e. WESCO (Now TPWODL) in prescribed format and it was forwarded to GRIDCO by the DISCOM. In response, GRIDCO has released 15 MVA power at 33 KV level from the 765/132/33 KV Darlipali substation of NTPC as part of drawl of Odisha share power. (Ref-1 dated 15/01/2016)
4. Further, as intimated by NTPC (Ref-3 dated 01/03/2016), OCPL took up the matter to the Ministry of Power (MoP), (GoI) for allocation of power, as Darlipali STPP is a Central Generating Station and in response, MoP, GoI approved for drawl of power from Darlipali STPP to OCPL through direct lines and intimated that this power shall be treated as part of Odisha's drawl. (Ref-4 dated 16/08/2016)
5. Accordingly, an agreement was executed between OCPL and NTPC (Ref- 5 dated 30/03/2017) for construction of additional 2 nos of 132/33 KV bays on deposit basis adjacent to the existing switchyard at Darlipali as drawl of above power was not possible at NTPC's own 33 KV system. Further, OCPL awarded the Contracts for construction of a 33 KV dedicated double circuit radial line of 11 Km length and a 33/6.6 KV substation at mines end for consumption of power at the load end.
6. Post execution of the agreement with NTPC, the DISCOM (TPWODL) has accorded connectivity permission to OCPL as Large Industry category for drawl of power at 33 KV. (Ref-6 dated 14/08/2019)
7. It may also be noted that both GRIDCO and MoP, GoI has approved drawl of power for NTPC's Dulanga coal mine project (in vicinity of Manoharpur coal mines of OCPL) through direct line from Darlipali Substation as part of drawl of Odisha's share. Both the cases of NTPC's Dulanga coal mine project and OCPL are mostly similar.
8. The matter involving the additional outlets from Darlipali STPP and the installation of interface energy meters for both Dulanga coal mine project of NTPC and Manoharpur coal mine of OCPL was put up in the 19th Meeting of Standing Committee of Power system planning of Eastern Region held on 01/09/2017 for approval of the drawl by GRIDCO. In response, the Hon'ble Members suggested that the issue does not come under the purview of Standing Committee (Item no. 40.7) and the issue may be placed in the OCC meeting of ERPC.

It is pertinent to mention that the construction work for the 132/33 KV bays at Darlipali, the connecting 33 KV dedicated double circuit radial line (feeder) and the mine end 33/6.6 KV substation is in advanced stage of completion and the drawl of power by OCPL is expected during January 2022 to facilitate operation of the proposed coal handling plant.



The Single-line Diagram for power drawl with metering scheme is enclosed herewith for kind reference. Further, as intimated by NTPC, the billing meters shall be installed at 132 KV voltage level connection point.

ERPC is requested to approve the above power drawl arrangement with installation of interface meters by the designated agency. If required, the matter may be placed in the upcoming Operation Coordination Sub-Committee (OCC) meeting of ERPC for such approval.

Your kind support and co-operation is solicited.

Thanking You,

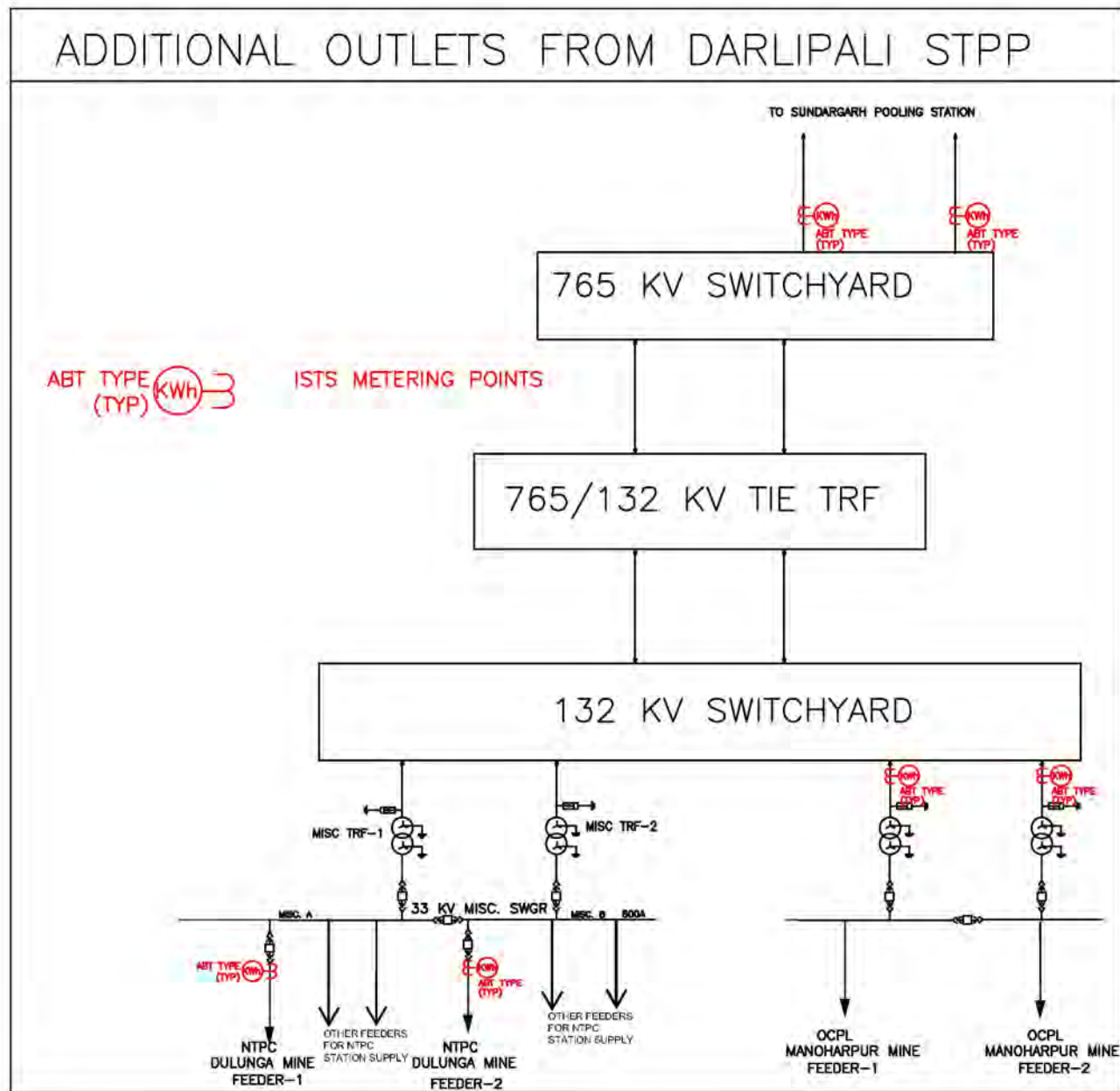
Yours sincerely,


Chief Executive Officer

Encl: As above

- CC: 1. Member (PS), CEA, New Delhi
2. ED, ERLDC, Kolkata
3. CGM, PP (GRIDCO), Bhubaneswar
4. CLD, SLDC, Odisha, Bhubaneswar
5. CEO, TPWODL, Burla
6. RED, ER-II, NTPC, Bhubaneswar
7. CGM, NTPC, Darlipali
8. ED, PGCIL, Odisha, Bhubaneswar

Single-line Diagram for power drawl with metering scheme



9 8 JAN 2016

| | |
|--------------------|---------|
| Date- | 15/1/16 |
| CS | |
| GM(Fin) | |
| DGM(Fin) | |
| GM(Rav) | |
| GM(HRD) | |
| GM(Fran) | |
| MA&R | |
| Safety Engineering | |
| AO | |

GRIDCO LIMITED

POWER PROCUREMENT BRANCH

FLOOR, ADMINISTRATIVE WING, BHOINAGAR, BHUBANESWAR - 751

TEL NO. 2545308, FAX: 0674 - 2547180, E-mail: sgm.pp@gridco.co.in

CIN NO-U40109OR1995SGC003960

DC-120/2010(Vol. 1)

Date 15/1/16

To

The Chief Operating Officer, WESCO,
Head Quarter, At/Po: Burla, Dist: Sambalpur, 768017

Sub : Release of 15 MVA Power at 33 kV in favour of M/s Odisha Coal & Power Ltd. required for operation of Manoharpur and Dip side Manoharpur coal blocks allocated to them located at Village Sarbahal, Hemgir in Sundergarh district - Regarding

Ref : Your Letter No. WESCO/Com-1004 dated 27.11.2015

Sir,

With reference to the above cited subject, 15 MVA Power at 33 kV is hereby released in favour of M/s Odisha Coal & Power Ltd. required for operation of Manoharpur and Dip side Manoharpur coal blocks allocated to them from the proposed 765/132/33 kV Darlipali sub-station of NTPC as part of the drawl of Odisha share power from NTPC Darlipali Thermal Power Station after commercial operation of at least one Unit of the Power Station.

The above release of power is subject to availability, fulfillment of commercial arrangements, if any required for off take of State share power and the terms and conditions stipulated in the system study conducted by OPTCL, if any and the terms and conditions to be stipulated by OPTCL on connectivity, protection, communication and data transfer etc. if any, which M/s Odisha Coal & Power Ltd. is to abide.

Yours faithfully,

[Signature]
CGM (PP)

Cc: CGM (Constn.) / CGM (O&M) / Sr. GM-I (TP&C) / Sr. GM (CP) / Sr. GM (R&T) / EA to CMD for kind information of CMD

The Manager (Elect.), Odisha Coal & Power Ltd., At/Po : Hemgir, Near Petrol Pump, Dist: Sundergarh for information and necessary action

The Regional Executive Director, ER-II (HQ), NTPC Ltd., OLIC Building, N-17/2, Nayapalli, BBSR for information and necessary action

Received
21/1/16

WESCO**WESCO UTILITY****DEPARTMENT OF COMMERCE**

Burla-768017, Dist Sambalpur, Odisha, Phone. (0663) 2430083.
 Facsimile (0663) 2432113 E-mail - commerce@wescorissa.com

WESCO/Com- 221 (4)

Dt. 01.02.2016

To,

M/s. NTPC Ltd.
 Darlipali Super Thermal Power Plant.
 At/Po-Darlipali.
 Dist-Sundergarh-770072.



Sub: - Regarding Release of 15 MVA power at 33KV in favour of M/s. Odisha Coal & Power Ltd.

Ref: - 1-Letter of M/s. OCPL Ltd. No. OCPL/Elect/07, dt. 26.11.2015.

2-Letter of GRIDCO Ltd. No.-468(9), dt. 15.01.2016.

Sir,

Please find enclosed herewith the letter received from GRIDCO Ltd. mentioned under reference-2 regarding permission for 15 MVA power at 33KV in favour of M/s. Odisha Coal & Power Ltd from your proposed 765/132/33 KV Darlipali Thermal Power Station as a part of the drawl of Odisha share power after commercial operation of at least one unit of the power station. In this regard it is requested to send a NOC to the office of the undersigned for supply of power to M/s. OCPL Ltd.

This is for your kind information and necessary action.

Yours faithfully,

[Signature]
 Chief Operating officer
 (WESCO Utility)

CC: EE, SED, Sundergarh.

CC: SE, EC, Rowkela

CC: M/s. Odisha Coal & Power

Pump, Sundergarh.

Ltd. At/ro. Hemgin, Near Petrol
 777013

NTPC

[Handwritten signature]
 Darlipali
 10/2/16



एन टी पी सी लिमिटेड

(भारत सरकार का उद्यम)

NTPC Limited

(A Government of India Enterprise)

पूर्वी क्षेत्र II मुख्यालय

Eastern Region - II Headquarters

भुवनेश्वर / Bhubaneswar

To
General Manager (Mines)
Odisha Coal and Power Limited (OCPL)
Zone-A, Ground Floor, Fortune Towers,
Chandrasekharpur, Bhubaneswar - 751023,

Ref : 01:CD-453A

Date: 01.03.2016

Sub: Drawl of 20 MVA load at 33 KV for Manoharpur coal mines from the Switchyard of Darlipalli STPS of NTPC.

Ref No. OCPL/285 dtd 19.10.2015.

Sir,

This has reference to OCPL's letter dtd 19.10.2015, regarding drawl of 20 MVA power for its Manoharpur coal block at 33 KV from the switchyard of upcoming NTPC Darlipalli project using the system meant for supplying power to Dulanga mine of NTPC.

NTPC had approached GRIDCO / WESCOM and they have agreed for supplying power to Dulanga mines. The power would be supplied out of Odisha's share from Darlipalli over a direct 33 KV line from Darlipalli STPS (2x800 MW) and would be treated as WESCOM supply.

NTPC has also undertaken primary study for feasibility of 20 MVA supply to OCPL from Darlipalli STPS. As per study the supply of 20 MVA will not be possible at 33 KV in the existing system due to system constraint. It will require creation of new infrastructure at 765 / 132 KV voltage level for which, any expenditure will have to be borne by OCPL.

Darlipalli STPS (2x800 MW) being a Central Generating Station, power allocation from the project is decided by MoP, Govt like all other NTPC stations. For allocation of power from Darlipalli STPS, OCPL will have to take-up the matter with MoP, Govt. On allocation of above power by MoP, Govt, subsequent arrangements including Commercial Agreement can be discussed.

Thanking you,

Yours sincerely,

01/03/2016

(Aditya Narayan Mishra)

General Manager (Commercial)

Copy

Director (Commercial), GRIDCO



No.5/6/2013-Th.II
Government of India
Ministry of Power

Shram Shakti Bhawan, Rafi Marg,
New Delhi-110001
16th August, 2016

To,

1. Chairperson,
Central Electricity Authority,
Sewa Bhawan, R.K. Puram,
New Delhi
2. Chairman & Managing Director,
NTPC Limited,
Scope Complex, Lodhi Road
New Delhi-110003
3. Member Secretary,
Eastern Regional Power Committee,
14, Golf Club Road, Tollygunge,
Kolkata-700033

Subject: Allocation of power from Darlipalli Super Thermal Power Project Stage-I (1600 MW) of NTPC-reg

Sir,

I am directed to state that power generated from the Darlipalli Super Thermal Power Project Stage-I (1600 MW), in Odisha, being implemented by NTPC, is allocated with effect from the date of commercial operation of the plant as per details given below:-

| Sl No | Name of the Constituents | Allocation in MW | Share in % |
|-------|--|------------------|------------|
| 1 | Unallocated | 240.00 | 15.00 |
| 2 | Bihar | 161.20 | 10.08 |
| 3 | Jharkhand | 125.48 | 7.84 |
| 4 | Orissa * [50% of power i.e. 800 MW already allocated to Odisha (Home State) vide MOP letter dated 17.01.11] | 800.00 | 50.00 |
| 5 | West Bengal | 249.50 | 15.59 |
| 6 | Sikkim | 23.81 | 1.49 |
| | Total | 1600.00 | 100.00 |

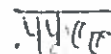
* Out of Odisha's share, power shall be supplied to Dulanga mines of NTPC and Manoharpur coal mines of OCPL through direct lines as per their requirement. This supply at Darlipalli Super Thermal Power Station end to Dulanga & Manoharpur coal mines shall be treated as part of Odisha's drawl from Darlipalli.*

2. The aforesaid allocation will be operative for pro-rata distribution to the quantum of electricity mentioned above, based on auxiliary consumption, planned outage, forced outage, availability of fuel / water etc. and after taking into account transmission losses.

3. The above allocation will further be subject to the Power Purchase Agreements (PPAs) entered into by NTPC Limited with State Power Utilities and will further be subject to the beneficiaries ensuring compliance with the financial and commercial terms (including coverage for Letter of Credit) of the PPA signed with NTPC Ltd., the tariff notification, any tripartite/ bi-partite agreement signed with NTPC and any other directives/ guidelines issued by the Government of India /Central Electricity Regulatory Commission from time to time.

4. This issues with the approval of the Hon'ble Minister of State (I/C) for Power, Coal and NRE.

Yours faithfully,



(Dr. P.K. Sinha)

Under Secretary to the Government of India

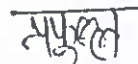
Telefax: 23719710

Copy to:

1. Chief Secretary, Government of Bihar, Patna
2. Chief Secretary, Government of Jharkhand, Ranchi
3. Chief Secretary, Government of Odisha, Bhubaneswar
4. Chief Secretary, Government of West Bengal, Kolkata
5. Chief Secretary, Government of Sikkim

Copy also to:

1. PS to Hon'ble Minister of State (I/C) for Power, Coal and NRE
2. PPS to Secretary (Power)/ JS (Thermal)/Director (OM)/ DS (Thermal)



(Dr. P.K. Sinha)

Under Secretary to the Government of India



उड़ीसा ORISSA

E 957311

AGREEMENT BETWEEN

ODISHA COAL AND POWER LIMITED (OCPL) AND NTPC LIMITED (NTPC)

For construction of 2nos 132 KV bays on behalf of OCPL in 765/132/33 KV switchyard
at Darlipali STPP.

ODISHA COAL AND POWER LIMITED, a company incorporated under the Companies Act 2013, having its registered office at ZONE-A, Ground Floor, Fortune Towers, Chandrasekharpur, Bhubaneswar, Dist., Khordha Odisha, Pin: 751023 here-in-after referred to as 'OCPL' (which expression shall, unless repugnant to the context and meaning thereof to deemed to mean and include its successors and permitted assigns) of the FIRST part.

AND

NTPC Limited, a Company incorporated under the Companies Act 1956 having its registered office at NTPC Bhawan, SCOPE Complex, 7, Institutional Area, Lodhi Road, New Delhi and having its Site at Darlipali STPP here-in-after referred to as 'NTPC' (which expression shall unless repugnant to the context and meaning thereof be deemed to mean and include its successors and permitted assigns) of the SECOND part.

6
1
11

Certified that a single stamp
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available. So, following
stamps : 100 +
Rs... 12.5

Stamp Vendor
D.K. Panigrahi, Sundargarh
24/3/17

No. 3307 Dt. 24/3/17
Stamp worth Rs. (Rupees)
one hundred only)

is sold to... D.K. Panigrahi
S/O... At-...
Dist-...
for...
AS

D.K. Panigrahi
Stamp Vendor
Sundargarh
24/3/17



17

Whereas NTPC is in the process of setting up of a power project named Darlipali Super Thermal Power Project at P.O. Darlipali, Dist. Sundergarh, Odisha, here in after referred to as "the Plant" and OCPL is desirous for drawlof 15 MVA power at 33KV from "the plant" to Manoharpur coal mines of OCPL which shall require construction of additional 2 nos 132 KV bays along with associated 132/33 KV step down transformers, 33 KV switchgears, cables, etc. in the 132 KV switchyard of "the plant" for the exclusive use of OCPL, here in after referred to as "the Facility".

Whereas OCPL is desirous of entrusting NTPC with the task of setting up of the facility and NTPC is willing to accept the same at a consideration, as deposit work in cost plus basis on mutually agreed terms & conditions hereafter mentioned in these presents.

NOW THIS INDENTURE WITNESSTH AS FOLLOWS:

In consideration of mutual understanding and agreement, parties mutually agree as under:

- I. The ownership of the facility shall vest with the OCPL and the role of NTPC in this agreement is limited to acceptance of supplies and supervise Construction, Erection, Testing and Commissioning of the facility as deposit work, on behalf of OCPL.
- II. As the facility will be located within the plant premises, after completion of the implementation works, Operation & Maintenance of the same shall necessarily be carried out by NTPC Darlipali. With regard to the Operation & Maintenance of the facility and the charges thereof, OCPL and NTPC shall enter into a separate agreement.

The general arrangement of the construction, working procedure and mode of payment by OCPL to NTPC shall be as described hereunder:

Am

Jwan



1.0 SCOPE OF WORK:

1.1 SCOPE OF SERVICES TO BE PERFORMED BY NTPC:

The scope of services to be rendered by NTPC for implementation of the project on behalf of OCPL under the agreement will be as under subject to specific exclusions as brought out in clause no 1.2 hereinafter:

- i. The scope of work includes design, engineering, procurement, supply, construction, erection, testing & commissioning of 2 nos 132KV bays along with associated equipment such as 132/33 KV step down transformers, 33 KV switchgears, building, cables, etc., in the 132 KV switchyard of the plant on turnkey basis through a contractor selected by NTPC, as per its standard contracting system under Domestic Competitive Bidding.

Equipment shall be specified confirming to type tests already carried out. Type test reports would be reviewed by NTPC for judging conformity. If necessary, NTPC would decide upon repeating any type test during the detailed engineering stage. OCPL may associate during inspection of major equipments.

- ii. NTPC will finalize bidding documents, invite bids under domestic competitive bidding procedure for appointing turnkey contractor, carry out evaluation of bids, finalize award, review design/drawings, test reports, accept supplies (on behalf of OCPL), supervise, erection, testing and commissioning activities etc. of the facility.
- iii. NTPC shall prepare the detailed tender document including the complete technical specification along with commercial terms & conditions and cost estimate. OCPL may be involved in finalizing commercial terms & conditions. Basis of cost estimate shall be provided by NTPC.



iv Terminal Points

The terminal points for interface between NTPC and OCPL are given in Annexure-I, which shall be an integral part of the Agreement.

v Auxiliary services for the facility

Costs of all equipment, services, etc. associated with the facility shall be fully borne by OCPL.

- vi After the detailed engineering 4 (four) copies of approved final drawings, documents shall be forwarded to OCPL by NTPC. At the time of handing over of the facility, 1 (one) set of RTF & 2 (two) copies of all drawings and 2 (two) copies of documents including all technical literature, test manuals and installation/instruction manuals shall be forwarded to OCPL by NTPC.

1.2 SCOPE OF SERVICES TO BE PERFORMED BY OCPL:

- i OCPL shall obtain Electrical Inspector's clearances for its bays at the facility at Darlipali STPP from concerned authorities. However, NTPC shall assist in obtaining the clearances by way of documentation.
- ii Being the owner of the facility, the responsibility for obtaining statutory clearance (if any), etc. for the facility shall exclusively be that of OCPL. However, NTPC shall assist in obtaining these clearances by way of documentation.
- iii Liaison and follow up with Government bodies for the facility and other statutory clearance(s), shall lie with OCPL. However NTPC will assist in the process.

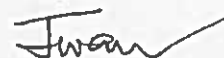
2.0 SYSTEM DATA:

132 KV Switchyard bays shall be designed based on short circuit level of 31.5 KA.



3.0 WORKING ARRANGEMENT:

- 3.1 The construction of the facility at Darlipali STPP is to be completed as per the schedule to be agreed between NTPC & OCPL and the same will be suitably incorporated in the contract with the contractor. It is specifically agreed that all Engineering and Contracts activities shall be carried out by NTPC as per their standard practice. However it is agreed by OCPL that any contractor appointed or to be appointed by NTPC shall be binding on OCPL.
- 3.2 NTPC shall execute the work as provided under clause no. 1.0 aforesaid with due diligence with the objective to complete the work within the stipulated time frame. However, for any delay in completing the work for the reason beyond its control or Force Majeure, NTPC will not be liable to pay for any liquidated damages or other consequences.
- 3.3 To ensure proper coordination between OCPL and NTPC for carrying out the works under the scope of this agreement, both NTPC and OCPL shall nominate their respective Engineer-in-Charge. They shall be the nodal point for coordination of all the activities between NTPC and OCPL and also coordination within their respective organizations.
- 3.4 In order to supervise the physical progress of the deposit work, NTPC-Darlipali STPP will nominate its Project Manager/Site Coordinator. OCPL shall nominate its Site Coordinator who will work under control of Engineer-in-Charge of OCPL.
- 4.0 This agreement shall be deemed to have commenced from 30th March 2017 and shall continue until handing over or it is terminated. In case of any differences or disagreements between OCPL and NTPC in regard to any changes required from time to time to the terms of this agreement, the same shall be resolved amicably.



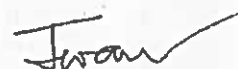
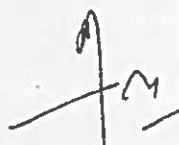
5.0 COST OF WORK& CONSULTANCY FEE:

- 5.1 For the entire work to be performed by NTPC, as specified under scope of work, OCPL shall pay to NTPC, the actual expenditure incurred by NTPC plus a Consultancy Fee @ 16.5 (Sixteen point five) % of the final executed cost of the project plus service tax/GST thereon as applicable or any statutory levy imposed by Govt. actual expenditure shall include the expenditure on items as detailed in Annexure-II, but not necessarily limited to the same. If NTPC arranges materials from its own inventory, then current cost of procurement and handling charges will be considered for accounting and reimbursement purpose.

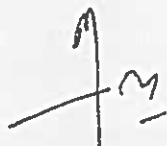
The estimated cost of the project as per para (a) of ANNEXURE-II below is Rs 802.0 Lakhs (inclusive of ED & CST) plus Service tax/GST or any other statutory levy imposed by Govt. on actual basis. However this is a tentative cost and final cost will be based on actual expenditure incurred during completion of work. In case of variation between awarded and estimated cost, the differential amount shall be adjusted in the payment made by OCPL accordingly.

The present Consultancy fee payable to NTPC based on the estimated cost of the project as mentioned above works out to Rs 132.33 Lakhs.

- 5.2 In order to avail of concessional Sales Tax on supply items, OCPL shall issue the requisite Concessional Sales-tax (Local/Central) declaration Forms through NTPC-Darlipali STPP for issuance to contractors. After issuing the Forms to Contractors, NTPC-Darlipali STPP shall furnish the utilization statement to OCPL.
- 5.3 OCPL shall provide requisite number of Road Permit to NTPC-Darlipali STPP for issuance to contractors for entry of supply items for the facility, in the state of Odisha. NTPC-Darlipali STPP shall furnish the utilization statement of Road Permits to OCPL.



- 5.4 The recovery of TDS under Income Tax Acts or in respect of any other statutory levy related to this deposit work shall be done by NTPC-Darlipali STPP on behalf of OCPL and deposit directly with the relevant Tax authorities into the TAN no of OCPL, on behalf of OCPL and intimation with relevant challans & statement shall be sent to OCPL every month. OCPL shall issue TDS certificates in all such cases.
- 5.5 Any recoveries made or to be made from the contractors on account of delays including liquidated damages, shortfall in performance, equipment etc. will be brought to the notice of OCPL and the benefits of the same will be passed on by NTPC to OCPL. Similarly, if any additional payment is required to be made to contractor as per provisions of contracts, the same shall form a part of actual cost to be paid by OCPL.
- 5.6 OCPL do hereby fully authorize NTPC to issue essentiality Certificate/attested list of goods, (if required), payment certificates etc. for the facility being executed by NTPC on behalf of OCPL.
- 5.7 Contractor's invoice for items of this facility will be addressed to "M/s NTPC Ltd. A/C OCPL."
- 6.0 **PAYMENT BY OCPL& RECONCILIATION:**
- 6.1 At no point of time, the expenditure on this project shall be met out of NTPC's fund. Simultaneously, NTPC will not divert this fund to meet its internal exigencies.
- 6.2 Based on LOA placed on the contractors/LC opened by NTPC, OCPL shall provide total funds for NTPC's commitments. Funds shall be released by OCPL, to NTPC-Consultancy, who in turn will provide the funds to NTPC-Darlipali STPP for releasing payments to contractors and to meet the other



costs of works as brought out above. NTPC-Darlipali STPP will not release funds to contractor, unless the funds are received from OCPL.

- 6.3 To facilitate smooth implementation of work and for timely completion, OCPL shall ensure that the required fund is released as below. NTPC shall commence the work under this Agreement after the receipt of first installment payment as indicated in clause no. 6.3 (i) below:

- i. Fifteen (15%) plus service tax of the estimated cost of the work along with Consultancy Fee @ 16.5 % shall be paid within 15 days of signing of the agreement. The estimated cost of the work is as per Annexure-II.
- ii. Further payments towards deposit work shall be made by OCPL, in advance (prior to issue of LOA to contractor/s), based on recommended award price along with Consultancy Fee @ 16.5%, as informed by Project Manager, NTPC. A copy of LOA issued to the contractor may be given to OCPL.

For any delay in remittance of payment by OCPL, NTPC shall not be liable for any delay thereof, in the completion schedule and the consequences arising thereof including claims lodged by the contractors etc. for the delayed payments, as also cost & time overrun claims. In such a situation, if there is delay in remittance of payment by OCPL to NTPC, OCPL shall indemnify NTPC and its officials against all claims, costs, interest, etc. arising out of such delay in payments to contractors, etc. and shall pay to NTPC such costs as may be demanded by Contractors without any delay, protests, contest, or reservation.

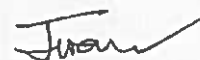
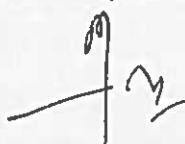
- 6.4 NTPC shall maintain records and accounts for all expenses incurred for execution of this deposit work. These accounts shall be open to OCPL officials for their inspection with prior written intimation.



- 6.5 After completion of entire works, closing of all contracts and discharging all obligations and liabilities, NTPC shall provide audited accounts of this deposit work to OCPL. Final recoverable figures on account of this work and overheads shall be worked out by NTPC and intimated to OCPL for final settlement and payment to NTPC. Any surplus funds will be remitted to OCPL, after closure of all contracts and completion of work.
- 6.6 Project Manager, NTPC shall furnish to OCPL the quarterly statement of expenditure along with contract wise/ head-wise details. At the end of the completion of project, the account shall be finally reconciled jointly by OCPL and NTPC. Reasonableness of the expenditure incurred by NTPC can be mutually discussed by NTPC and OCPL.
- 6.7 The quarterly expenditure returns will be furnished by Project Manager, NTPC to OCPL within one month of completion of quarter and shall include broad details of supplies, construction works and other expenses. The final adjustment of the amount paid by OCPL and spent by NTPC shall be made in final closing of accounts after completion of works.
- 6.8 The final audited accounts of the project shall be rendered by NTPC as expeditiously as possible after completion of the Project, but not later than six months of completion of the Project.

7.0 PROGRESS MONITORING:

- 7.1 NTPC shall submit suitable bar charts indicating monthly supplies of various materials, equipment and other activities giving quantities, wherever possible.
- 7.2 To ensure timely completion of this Project, there shall be regular monitoring by the project managers of OCPL and NTPC and a quarterly review meeting at the level of the Engineer-in-Charge of both organizations alternatively at the respective organization Headquarters. NTPC shall also



ensure submission of monthly detailed progress report by contractor as per mutually agreed format to the project coordinator /project manager with a copy to Engineer-in-Charge OCPL.

- 7.3 OCPL shall be fully associated in pre-commissioning and commissioning activities of the switchyard extension bay particularly for the commissioning of the control and protection scheme so that they are well acquainted and coordinated with the existing equipment. OCPL will also be responsible for inter connection and clearance from outside agencies like CEA/State Power utilities etc., concerned for this work.

8.0 SUSPENSION OF WORK:

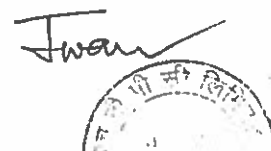
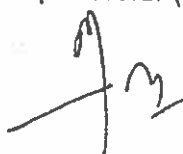
If OCPL desires to suspend all or any part of the work for such period of time, as may be determined by them, OCPL shall inform NTPC in writing before 60 days in advance and the reasons of such suspension. Additional expenses to NTPC on this account, if any, shall be paid by OCPL as per mutual agreement, based on NTPC estimates.

9.0 QUALITY ASSURANCE:

In order to achieve high standards of quality of material and equipment to be procured and erected by NTPC prevalent specifications of NTPC will be followed. Warranty of various equipment and supplies will be tied up in the contract between NTPC and Contractor and the benefit of the same shall be passed on to OCPL.

10.0 INSURANCE:

NTPC takes full responsibility to take care of equipments. However, if any accidental damage caused to any equipment during the care, operation and maintenance shall have to be made good by OCPL and NTPC shall not be responsible. (OCPL may cover appropriate insurance for equipments at the



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NTPC Premises/ bay at their cost and lodging claims and processing them with insurance company for recovery.

11.0 CONTRACT CLOSING:

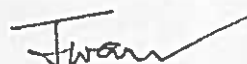
On the basis of certification of OCPL that warranty period of equipment covered under the contract(s) awarded by NTPC has been satisfactorily completed, NTPC shall close these contract(s) and provide audited accounts to OCPL. Any claim raised by contractor(s) beyond the contract provisions shall be mutually discussed and finalized jointly by NTPC and OCPL.

12.0 TAKING OVER:

12.1 NTPC shall intimate OCPL as soon as the works have been completed in all aspects. OCPL shall issue a certificate to NTPC Site-in-Charge (herein called the Taking over Certificate) in which they shall certify the date on which the works have been completed and passed commissioning tests, if any. The issue of taking over certificate shall not be unreasonably withheld by OCPL. In case Taking Over certificate is not issued on satisfactory completion & commissioning of the project, it shall be deemed to have been taken over on expiry of 30 days from the date of intimation by NTPC and NTPC shall be free from all its liabilities whatsoever. OCPL therefore shall immediately without any delay take over and enter in to separate contract with NTPC for commencement of Operation & Maintenance of the Project in line with para II mentioned at page-2 of this agreement.

13.0 FORCE MAJEURE

13.1 Force Majeure is herein defined as any cause, beyond the reasonable control of OCPL or NTPC as the case may be, which with a reasonable amount of diligence could not have been foreseen and which substantially affects the performance of the respective obligations of the parties, such as:



- a) Act of God (such as but not limited to tidal waves, epidemics, flood, draught, cyclone, lightning, tsunami, earthquake etc.;
- b) Acts of Government (domestic or foreign) including but not limited to war, hostilities (whether war declared or not), invasion, act of foreign enemies, or embargos;
- c) Rebellion, revolution, insurrection, civil mutiny, commotion, riot, terrorist or militants acts, accident by fire, explosion and/ or any other cause beyond the control of parties;
- d) Acts of any Government, including but not Ltd. to war, declared or undeclared, priorities, quarantines;
- e) Hostilities, revolutions, riots, civil commotions, illegal strikes including in the premises of the contractors.
- f) Any Changes in the Government Policies.

Provided that either party shall within 7 days from occurrence of such a cause notify the other in writing of the same. The work will remain suspended for the period till the force majeure situation continue. NTPC shall not be liable for delays in performing their obligations or delays in respect thereof due to any cause whatsoever beyond their control including force Majeure cause as briefly referred to and/or defined above.

14.0 TERMINATION/SHORT CLOSURE OF CONSULTANCY CONTRACT

- a. In the event when both the parties mutually agree to terminate the said arrangement on account of force Majeure or any other reason, the termination shall take effect from the date and time to be agreed upon mutually.
- b. In the event of termination of the arrangement, compensation shall be paid to NTPC for all services performed by it up to the date of termination. In addition, NTPC shall be paid proportionately for such of those items of work, which have been partially completed.

15.0 LIMITATIONS OF LIABILITY

15.1 Indemnification

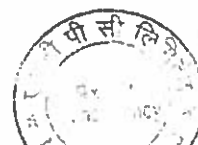
OCPL shall indemnify and hold NTPC Ltd. and its officials harmless, against any claims, demands, cost, damages, expenses, charges, taxes, duties, either existing or future, claimed against NTPC Ltd. as a result of performance of this Contract or for any reasons whatsoever arising out of this contract, except those arising due to willful act. Under this arrangement the obligations of NTPC Ltd. shall be limited to as provided in "Scope of Work".

15.2 Liability for indirect or consequential damage

Neither NTPC Ltd. nor OCPL shall be liable to the other in any manner whatsoever by reason of any breach of the terms under this Contract or of any statutory duty or by reasons of tort, for any loss of profit, loss of use, loss of revenue, loss of production, or for any other indirect or consequential damages that may be suffered by the other. Neither party shall be liable to the other except to the extent specifically set out in this arrangement.

16.0 SETTLEMENT OF DISPUTE AND ARBITRATION:

16.1 All difference or disputes between the parties arising out of or in connection with these presents shall in the first instance be amicably settled/ resolved between the parties. Failing amicable settlement amongst the parties, the same shall be settled through arbitration by three arbitrators, one each appointed by the parties and the third arbitrator to be appointed by these two arbitrators as per the provisions of Arbitration & Conciliation Act-1996 and any amendment there to. The venue of Arbitration shall be at New Delhi, India. The Courts at Delhi shall have exclusive jurisdiction.



17.0 NOTICES:

All notices and other communication in respect of this Agreement shall be given in writing in English by Registered/Speed Post or by FAX, to the party entitled thereto at its address set forth below or such other address as shall hereafter designated for this purpose.

Head of Marketing,
NTPC CONSULTANCY,
EOC Annexee,
A-8A, Sector-24, Noida,
U.P., Pin: 201301.

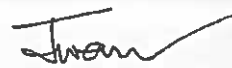
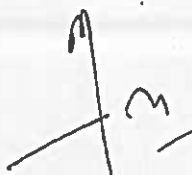
Chief Executive Officer,
ODISHA COAL AND POWER LIMITED,
ZONE-A, GROUND FLOOR FORTUNE TOWERS,
CHANDRASEKHARPUR,
BHUBANESWAR, Khordha,
Odisha, Pin: 751023.

18.0 AMENDMENT:

This agreement shall not be amended, altered or modified except by an instrument in writing, duly signed by Authorized Signatory of the parties to this Agreement.

19.0 TERMINATION OF THE AGREEMENT:

This Agreement may be terminated by either party by giving 3 months advance written notice of their intentions to do so.



20.0 EFFECTIVE DATE:


This Agreement shall become effective for all purposes and intents upon its signing and shall remain valid till completion of the work or till it is terminated earlier.

21.0 GOVERNING LAW & JURISDICTION OF COURT:

The Courts of Delhi shall have the jurisdiction in all matters under the contract.

IN WITNESS where of authorized representatives of both OCPL & NTPC have executed this AGREEMENT on this 30th Day of March 2017.

For and on behalf of OCPL
(Authorized signatory)


Signature:  30/3/17

Name: Bimal Jena

Designation:

Dy. General Manager (Electrical)
OCPL, Bhubaneswar


For and on Behalf of NTPC
(Authorized signatory)


Signature:  30/03/2017

Name: J.K. SWAMY

Designation: जे. के. स्वामी / J. K. SWAMY
अपर महाप्रबन्धक (विपणन)
Addl. General Manager (Marketing)
एनटीपीसी लिमिटेड / NTPC Limited
EOC Annex Bldg., A-8A, Sector-34, NOIDA-201301 (UP)


Witness:

1.  30/3/2017
(G. Dehury)
Head of HR

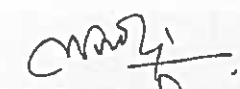
2.  30-3-17
(U.S. GONELA)
Chief of HR - OCPL

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Witness:

1.  30/3/17
ARUP BHATTACHARYA
Asst. Genl. Mgr (EED)
Emp. no. 002295
NTPC/DSTPP.

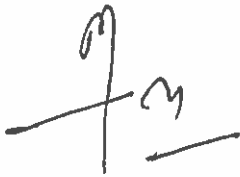
2.


K.M.K. Poudyal
AGM (TS)
DSTPP

Annexure-ITERMINAL POINTS

The terminal points for inter-face between NTPC & OCPL are given as under

1. Power supply at 33KV level shall be extended up to plant boundary by NTPC.



Annexure-II

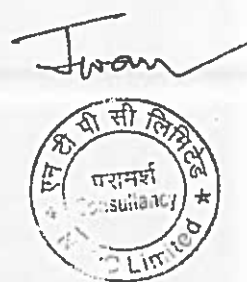
Items of expenditure to be generally included in actual cost

- a) Cost of supplies including mandatory spares (FOR site inclusive of inland freight & transit insurance charges), erection, testing & commissioning of 132 kV Switchyard bays and associated 132/33 KV step down transformers, 33 KV switchgears, cables, etc., in contractor's scope along with escalations and extra claims, if any.

The contract for facility will be awarded to a Contractor selected by NTPC as per its contracting system. The estimated cost for 132 KV switchyard bays and associated 132/33 KV step down transformers, 33 KV switchgears, cables, etc., is Rs 802.0 Lakhs (inclusive of ED & CST). However, the final cost will vary and will be arrived at after completion of all works. This cost estimate is subject to escalations as per the provisions of Contracts.

- b) The actual cost of other associated and auxiliary works including civil works i.e. switchgear room & transformer room leveling/dressing, Tower/Equipment foundations, Cable trench, culverts, roads & drains, gravel fillings & anti-weeds treatment etc., as certified by NTPC's Project Manager.
- c) Insurance, octroi, work contract tax, excise duty, entry tax, sales tax on the goods used in the works, service tax and any other taxes, duties and levies by Central, State, and other authorities, on this deposit work, at any point of time, before or during or after completion. This shall include all direct & indirect taxes as well.
- d) Expenditure on legal, litigation cases, arbitration court fees, advocate fees and charges etc. (with prior approval of OCPL).
- e) Any other unforeseen expenditure to be incurred by NTPC in execution of work.
- f) Cost of press advertisement for IFB.

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WESCO UTILITY

HEAD QUARTER OFFICE, BURLA
DEPARTMENT OF COMMERCE

Burla-768017, Dist: Sambalpur, Odisha, E-mail: ID: connectivity@wescoodisha.com

No. WESCO/Com/PS/RKL2-New-2019 - 647

Dt: 14.08.2019

To,
The Manager (Elect.),
M/s. Odisha Coal and Power Ltd.,
At./Po.-Hemgir, Near Petrol Pump,
Dist.-Sundergarh-777013.

Sub:- Power supply permission to M/s. Odisha Coal and Power Ltd. for a contract demand of total 15000 KVA at 33KV for operation of their coal mines project at.- Manoharpur under SED, Sundergarh from the proposed 765/132/33KV substation of M/s NTPC Ltd., Darlipali STPP.

Ref: -1. Letter No. 599(4), dt 29.07.19 of SE, MRT, Rourkela.

2. Letter No. DC-120/2010(Vol-II)/468(9), dt.15.01.2016 of CGM (PP), GRIDCO Ltd.

Sir,

With reference to the letters cited above, permission is hereby accorded for giving power supply to M/s. Odisha Coal and Power Ltd. for contract demand of 15000 KVA at 33 KV with the following stipulations.

1. Voltage of supply shall be at 33 KV.
2. Contract demand shall be 15000 KVA.
3. Tariff shall be as applicable under Large Industry.
4. The consumer shall install a suitable rated capacitor to keep overall power factor at 92%. This must be ensured before effecting power supply.
5. M/s OCPL shall avail power supply by drawing two nos. of 33KV dedicated feeders from the proposed 765/132/33KV substation of M/s NTPC Darlipali Super Thermal Power Plant as a part of the drawl of Odisha share power from M/s NTPC Darlipali STPP after commercial operation of at least one Unit of the Power Station. The quantum of power drawn by M/s OCPL shall be treated as GRIDCO power & Inturn WESCO shall bill the same to the consumer on RST.

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6. The consumer shall use his own Transformers (2 x 20000KVA, 33/6.6KV) along with suitable protective devices as per provision in the relevant section of I.E. Rules, through a licensed Electrical Contractor. Before commissioning of the substation, machineries, equipments and Installation it should be inspected and approved by the Electrical Inspector before energisation.
7. Metering system should be installed as follows:
 - a. M/s OGPL will draw power from the 765/132/33KV GSS Darlipali directly through their own two nos. of dedicated feeders. Metering will be done at Darlipali GSS through two nos. of Apex 100 meters with summator modules and will be treated as billing meter .
 - b. There should be another two nos. of meter with summator at the receiving end of site at 33/6.6KV S/s of M/s OGPL & will be treated as check meters.
 - c. Both the summator module should be LAG only and have TOD facilities.

The cost of the energy meters shall be borne by the consumer.
8. The company reserves the right to install a check meter on the low voltage side of consumer's Transformers as and when its necessity is felt and you will give full cooperation to the company in installing the check meter.
9. The metering installation will be inspected by Chief Operating Officer, WESCO Utility or his authorized representative before energisation.
10. The Consumer shall execute a fresh agreement with the **Chief Operating Officer, WESCO Utility** in Form No. 3 of OERC Distribution (Conditions of Supply) Code 2004 now in force.
11. If the consumer is prepared to take power supply through a pre-payment meter, he has to procure the pre-payment meter as per standards specified by the Central Electricity Authority (Installation & Operation of Meters) Regulations, 2006 (with amendment from time to time) from the vender/market & intimate WESCO Utility and arrange for installation of the pre-payment meter in his premises before execution of agreement for supply of power.

Cont.. p/3


12. If the consumer is not prepared to take power supply through a pre-payment meter or not able to procure a pre-payment meter as per standards specified by the Central Electricity Authority (Installation & Operation of Meters) Regulations, 2006 (with amendment from time to time), he shall deposit **Rs.7,66,64,400/-** (Rupees Seven Crore Sixty Six Lakhs Sixty Four Thousand & Four Hundred Only) towards security deposit for availing 15000KVA load before execution of agreement and cannot insist/claim supply of power to his premises through a pre-payment meter. The mode of payment of security deposit is only in Demand Draft, in favour of Administrator WESCO Utility, payable at Sambalpur. (For E-payment the detailed & Affidavit for not installing prepaid meter is enclosed herewith)
13. Power supply is to be given only after verification of the metering arrangement by the **S.E. (MRT), Rourkela.**
14. All rules and regulations of OERC Distribution (Conditions of Supply) Code 2004 and any other legal and statutory conditions applicable to the industry shall be observed before affecting power supply.

N.B.- The address of correspondence & billing address should be submitted before execution of agreement.

Power Supply will be given to the consumer subject to clearance of arrear outstanding dues if any.

The permission shall be valid for a period of three months from the date of issue of this letter.

Yours faithfully,


Authorized Officer
(WESCO Utility)

C.C to S.E., E.C., Rourkela.

C.C to E.E., S.E.D., Sundergarh.

C.C to S.E., M.R.T., Rourkela.

C.C to G.M. (Planning & Works), WESCO Utility, Bura.

C.C to SE-Cum-Ele. Inspector, Rourkela At-Office of the El. Inspector (T & D), Rourkela, Plot. No. YY-2, area 7& 8, Rourkela-769004.

C.C. to C.G.M.(PP), GRIDCO Ltd., 1st floor, Administrative Wing, Po.-Bhojnagar, Bhubaneswar-751022.

C.C. to Sr.G.M.(C), Zone-II, Sambalpur, OPTCL, At-132/33KV GSS Ganeshnagar, BohidarNuapali, Po.-Sankarna, Sambalpur-768006.



भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केंद्रीय विद्युत प्राधिकरण
Central Electricity Authority
विद्युत प्रणाली योजना एवं मूल्यांकन प्रभाग-II
Power System Planning & Appraisal Division-II

संख्या : 66/5/2017/PSPA-2/1430-1444

Dated: 09.11.2017

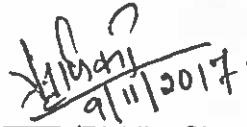
To
As per List Enclosed

विषय : पूर्वी क्षेत्र के लिए विद्युत प्रणाली योजना पर स्थायी समिति की 19 वीं बैठक का कार्यवृत्त ।
Subject: Minutes of 19th Meeting of Standing Committee on Power System Planning for Eastern Region.

Sir/Madam,

Minutes of 19th Meeting of Standing Committee on Power System Planning for Eastern Region held on 01st September, 2017 at Kolkata is uploaded on the CEA website: ([www.cea.nic.in/Wings/Power Systems/PAP&A-II/Standing Committee on Power System Planning/Eastern Region](http://www.cea.nic.in/Wings/Power%20Systems/PAP&A-II/Standing%20Committee%20on%20Power%20System%20Planning/Eastern%20Region)).

Yours faithfully,


(रिषिका शरण / Rishika Sharan)
निदेशक/ Director

Copy for kind information to:
1) PPS to Member PS, CEA

| | | | | | |
|----|--|--|------------|-----|--|
| 10 | | | Deoria | 132 | |
| 11 | | | Chandiapur | 132 | |
| 12 | | | Gadhion | 132 | |
| 13 | | | Jeonathpur | 132 | |
| 14 | | | Chunar | 132 | |

39.3 A meeting regarding Connectivity of Railways TSS with ISTS Network at Abdullapur, Meerut and Sasaram for Ludhiana-Delhi-Sonnagar route was held in CEA on 21.07.2017. The following were decided in the meeting.

- (i) *As no representative from Bihar was present in the meeting no decision could be taken in respect of connectivity to Railways TSS at Sasaram substation.*
- (ii) *Railways would utilize existing two number of 220 kV bays at Abdullapur substation (presently used for 220 kV supply to Jagadhari TSS) to meet their additional traction load requirement. The required technical upgradation of the 220 kV line (presently only two phases has been strung) would be carried out by Railways subject to fulfilment of all the existing agreements of HVPNL with Railways for this line.*
- (iii) *Two nos. of 220 kV (GIS) bays at Meerut 400/200kV substation along with establishment of 220/132kV, 2x100 MVA GIS in the premises of Meerut 400/220 kV substation was agreed for providing connectivity to Railways. The cost of above works shall be borne by Railways. Railways to implement 132 kV D/c interconnection from Meerut (PG) to their 132 kV substation.*

39.4 Representative of ERPC stated that it would be more appropriate to discuss the issue in a special meeting at CEA/ERPC.

39.5 Members agreed for above.

40. Additional outlets from Darlipalli STPP and North Karanpura STPP for mining activities

40.1 Representative of NTPC informed that the Associated Transmission System of Darlipali STPP stage-I (2x800MW) project was finalized in 13th ER Standing Committee Meeting and LTA meeting held on 12th February 2012 with the following Evacuation system:

- Darlipali – Jharsuguda (Sundergarh Pool) 765kV D/c line

40.2 Coal for the project is planned to be sourced from Dulanga captive coal mine allocated to NTPC by Gol which is located at a distance of 10km from the project.

40.3 NTPC had approached OPTCL for power supply to Dulanga mine as HT consumer however it has been asked by GRIDCO to draw the power for this mine from GRIDCO share of power in Darlipali directly from the generation switchyard in view of vicinity to the generation project. As such suitable arrangement has been made in the auxiliary power supply system of the project for providing 15 MVA power to the linked mine at 33kV voltage level.

- 40.4 Further, GRIDCO has also allotted additional 15MVA of power for Manoharpur coal mine of OCPL(in vicinity of Dulanga mines) and has asked them to draw power directly from DSTPP generation switchyard as being done in case of Dulanga mines. It may be noted that these load centres are radially fed from the generation switchyard.
- 40.5 Further, for meeting the power supply requirement of captive Chatī Bariatū & Kerandari and Pakri Barwadih coal mines, 2 nos. 220kV feeder from North Karanpura project has been planned. Power from NKSTPP to mines also shall be drawn in radial mode.
- 40.6 In view of the above NTPC requested that above drawls may be considered as drawl by GRIDCO/ Jharkhand from their share of allocated power from Darlipalli and North Karanpura projects. Also required interface energy meters shall be installed by CTU.
- 40.7 Members expressed that this issue does not come under the purview of Standing Committee. MS, ERPC advised that NTPC could place this issue in the next OCC meeting of ERPC. NTPC agreed for the same.
- 41. Interim arrangement for power evacuation from Nabinagar TPP (3X660MW)**
- 41.1 Director (PSPA-2) said that, the 1st unit of Nabinagar TPP (3x660MW) is in advance stage of completion and anticipated to be synchronized in Oct' 17. The scheduled commissioning of this unit is in Nov' 17. The evacuation system for Nabinagar TPP includes Nabinagar - Gaya 400kV D/C (Quad) transmission line which was awarded by POWERGRID in Apr'16 with commissioning schedule as 38 months. However, POWERGRID had agreed to complete the line on best effort basis matching with commissioning of the 1st unit of the generation project. The anticipated date of completion of the line is Dec'17 which may be delayed further and hence the completion schedule of the line may not match with commissioning date of 1st unit of Nabinagar TPP. It is, therefore requested that interim arrangement of evacuation of power for Nabinagar TPP may be evolved.
- 41.2 Representative of POWERGRID stated that Nabinagar-II – Gaya 400kV D/c line is crossing the Daltanganj – Sasaram 400kV D/c line. Sasaram to crossing-point and Nabinagar-II to crossing point lines are under advance stages of completion and the two sections can be joined to form Nabinagar-II – Sasaram 400kV S/c line as interim arrangement for connection of Nabinagar-II to grid. After completion of Nabinagar-II – Gaya line, the interim arrangement would be removed.
- 41.3 Members agreed for the interim arrangement for Nabinagar-II as proposed by POWERGRID.
- 42. Revision in capacity of 4th 220/132kV ICT at Rangpo S/s under ERSS-XX**
- 42.1 Representative of POWERGRID informed that installation of 4th 220/132kV, 160MVA ICT at Rangpo S/s was planned under ERSS-XX in order to meet the N-1 reliability criteria in the 18th Standing Committee Meeting of ER. About

Annexure-I

List of the participants of 19th Standing Committee Meeting on Power System Planning of Eastern Region held on 01-09-2017 at Kolkata.

| Sl. No. | Name | Designation | Mobile No. | E-Mail |
|---|----------------------------|------------------------|------------|--|
| Central Electricity Authority (CEA) | | | | |
| 1. | Shri P.S.Mhaske | Member (Power System) | | |
| 2. | Shri S.K. Ray Mohapatra | Chief Engineer | 9818527857 | skrmohapatra@rediffmail.com |
| 3. | Smt. Rishika Sharan | Director | 9868021299 | rishika_sh@yahoo.com |
| 4. | Shri U.M. Rao Bhogi | Dy. Director | 8800641444 | umarao236@gmail.com |
| Eastern Regional Power Commission (ERPC) | | | | |
| 1. | Shri A. Bandopadhyay | Member Secretary | 9433068533 | mserpc.power@nic.in |
| 2. | Shri D K Bauri | EE | 9883617236 | Eeop.erpc@gov.in |
| Railways | | | | |
| 1. | Shri Punit Agrawal | Director(EPS), MoR | 9910487331 | deaps@rb.railnet.gov.in |
| 2. | Shri J C S Bora | GM, REMCL | 9205060038 | jsbora@rites.com |
| 3. | Shri Ramesh Maurya | Dy. CGM, DFCCL | 7897003135 | rmaurya@dtcc.co.in |
| Central Transmission Utility (CTU) | | | | |
| 1. | Dr. Subir Sen | COO (CTU-Plg & SG) | 9650293185 | subir@powergridindia.com |
| 2. | Shri Ashok Pal | GM (CTU-Plg) | 9910378105 | ashok@powergridindia.com |
| 3. | Shri Dilip Rozekar | AGM (CTU-Plg) | 9910378105 | drozekar@powergridindia.com |
| 4. | Shri Ramachandra | DGM(CTU-Plg) | 9910378128 | ramachand@powergridindia.com |
| 5. | Shri Manish Ranjan Keshari | Sr. Engineer (CTU-Plg) | 8826094864 | manish.keshari@powergridindia.com |

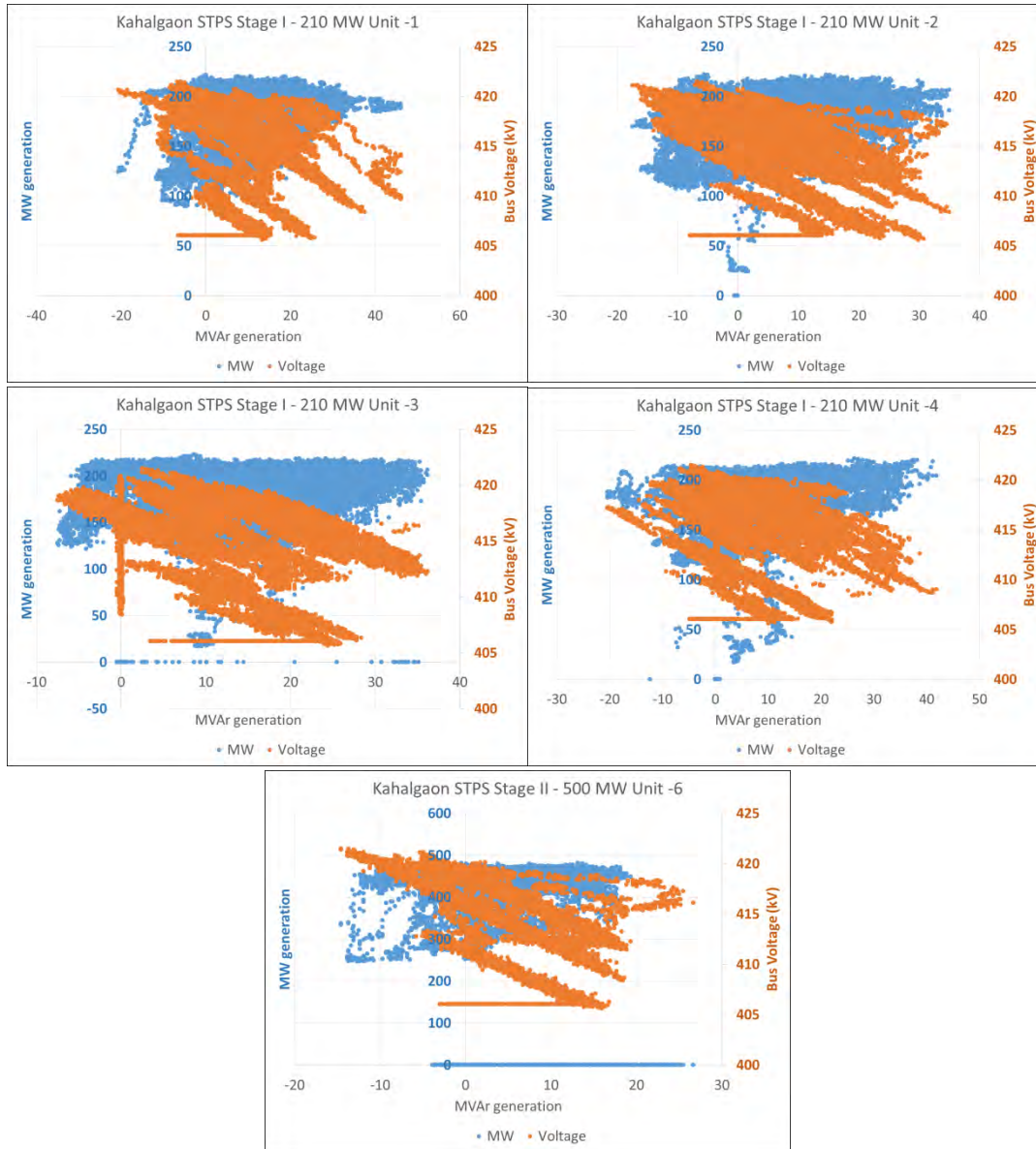
Minutes of 19th Standing Committee Meeting on Power System Planning of ER

| Sl. No. | Name | Designation | Mobile No. | E-Mail |
|---|--------------------------|------------------------|------------|--|
| 6. | Shri Anupam Kumar | Engr (CTU-Plg) | 9599814165 | anupamk@powergridindia.com |
| Power Grid Corporation of India Ltd (PGCIL) | | | | |
| 1. | Shri Bharat Bhushan | ED (ER-II) | 9403777811 | bharatbhushan@powergridindia.com |
| 2. | Shri S N Sahay | ED (ER-I) | 9431815043 | snsahay@powergridindia.com |
| 3. | Shri Sunil Agrawal | ED (LD&C) | 7042195168 | sunila@powergridindia.com |
| 4. | Shri S K Pramanik | GM (Projects) | 7603037367 | skpramanik@powergridindia.com |
| 5. | Shri A. Sensarma | AGM (Asset Management) | 9717296934 | asensarma@powergridindia.com |
| 6.. | Shri S. Chattopadhyay | AGM (RP&IT) | 9434742008 | schattopadhyay@powergridindia.com |
| 7. | Shri S.J. Lahiri | DGM(Engg.) | 9434742001 | sjlahiri@powergridindia.com |
| 8. | Shri Arvind Prasad | DGM(Engg.) | 9431815687 | arvindprasad@powergridindia.com |
| 9. | Shri S N Ghosh | Asst, GM(ULDC) | 9434740016 | Sngosh@powergridindia.com |
| 10. | Shri A.K. Dash | CM (OS) | 9434740029 | anjandas@powergridindia.com |
| 11. | Shri P. Ghosh. | Dy. Mgr(AM) | 9434748263 | partha.ghosh@powergridindia.com |
| 12. | Shri S. Goswami | Dy. Mgr. (ER&S IT) | 9434748366 | sudipgoswami@powergridindia.com |
| Odisha | | | | |
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| 3. | Shri Upendra Nath Mishra | CGM(PP), GRIDCO Ltd | 9438907774 | Ssgm.pp@gridco.co.in |
| 4. | Shri Umakanta Sahoo | DGM(EI), GRIDCO Ltd | 9437185507 | u.sahoo.pure@gmail.com |
| Bihar State Power Transmission Corporation Ltd. (BSPTCL) | | | | |
| 1. | Shri Bhaskar Sharma | Director (Project) | 9771496900 | |
| 2. | Smt. Shweta Rani | AEE | 7635092519 | Srani828@gmail.com |

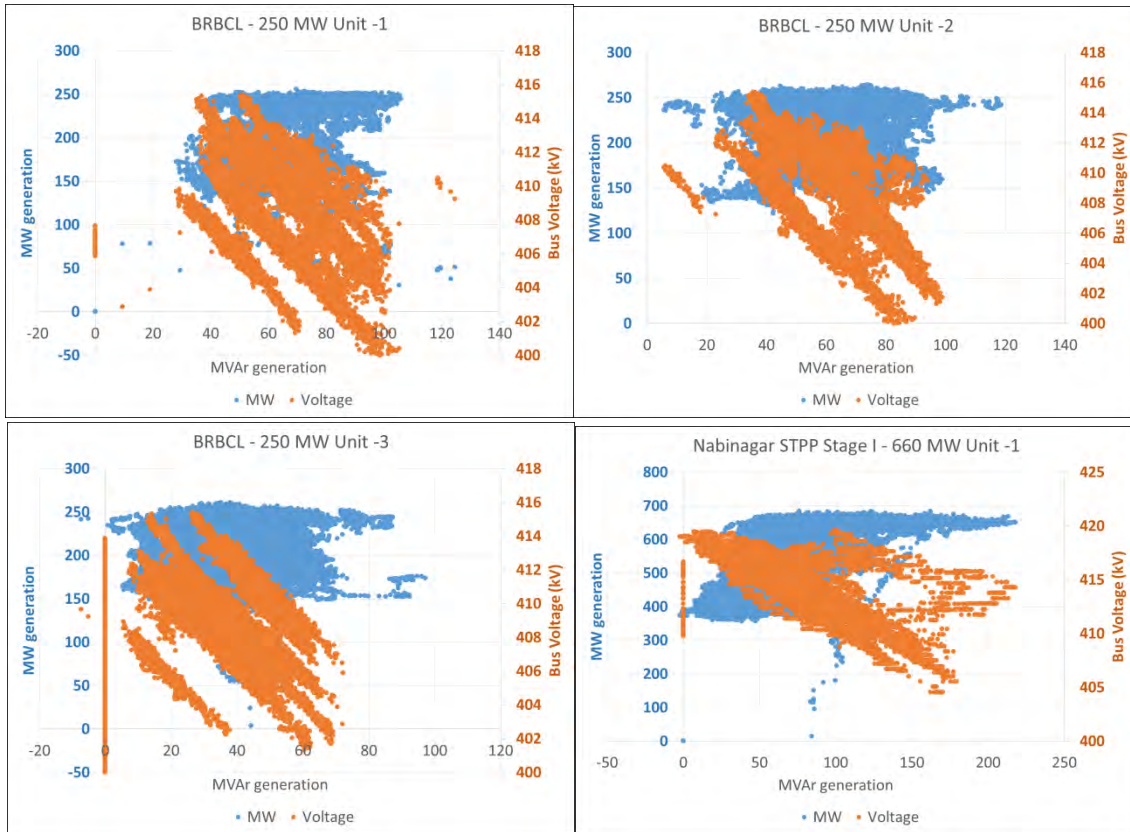
| Sl. No. | Name | Designation | Mobile No. | E-Mail |
|---|-------------------------|-----------------------------|------------|--|
| 3. | Smt. Sarita Kumari | AEE | 7635092523 | Saritak0506@gmail.com |
| Sikkim | | | | |
| 1 | Shri K.B.Kunwar | Principal Chief Engineer | 9434032924 | kunwarkb@gmail.com |
| National Transmission Power Corporation (NTPC) | | | | |
| 1. | Shri Subhash Thakur | Addl GM (PE-Elect.) | 9650991067 | subhashthakur@ntpc.co.in |
| West Bengal State Electricity Transmission Corporation Limited (WBSETCL) | | | | |
| 1. | Shri V. Roy | Director(Op) | 9434910015 | Vabya_60@yahoo.com |
| 2. | Shri A. Karmakar | CE(CPD) | 9434910090 | asik.karmakar@wbsetcl.in |
| 3. | Shri P.K.Kundu | CE, SLDC | 9434910030 | wbsldc@gmail.com |
| 4. | Shri Sajal Kumar Bag | SE, CPD | 9434910093 | sajal.bag@wbsetcl.in |
| Damodar Valley Corporation | | | | |
| 1. | Shri A. Debnath | Executive Director (System) | 9831954257 | dir.system@dvc.gov.in |
| 2. | Shri Suman Kumar Bose | CE(SPE) | 8145524994 | Suman.bose@dvc.gov.in |
| 3. | Shri Dinesh Kumar Singh | Dy. CE (E)/ SPE | 9434535601 | Dinesh.singh@dvc.gov.in |

MVAr injection/absorption by generating units with inadequate reactive power support during August 2021

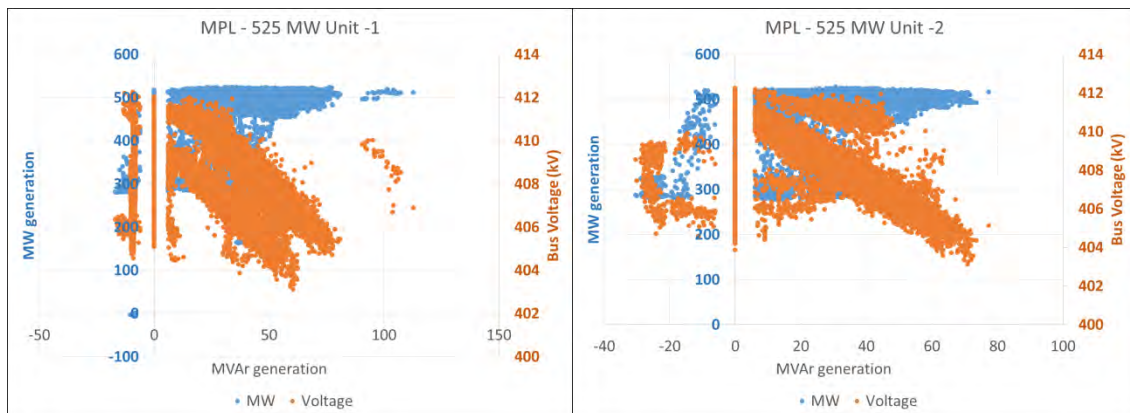
Kahalgaon STPS



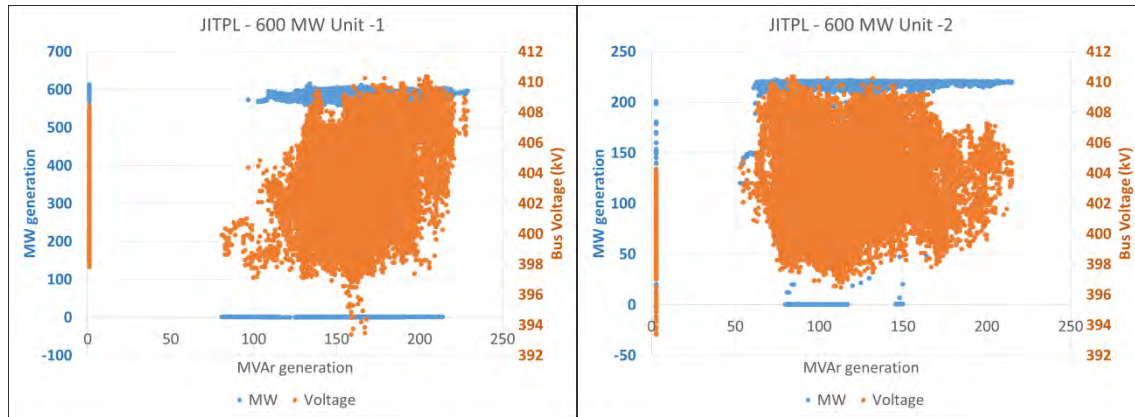
BRBCL & NPGC



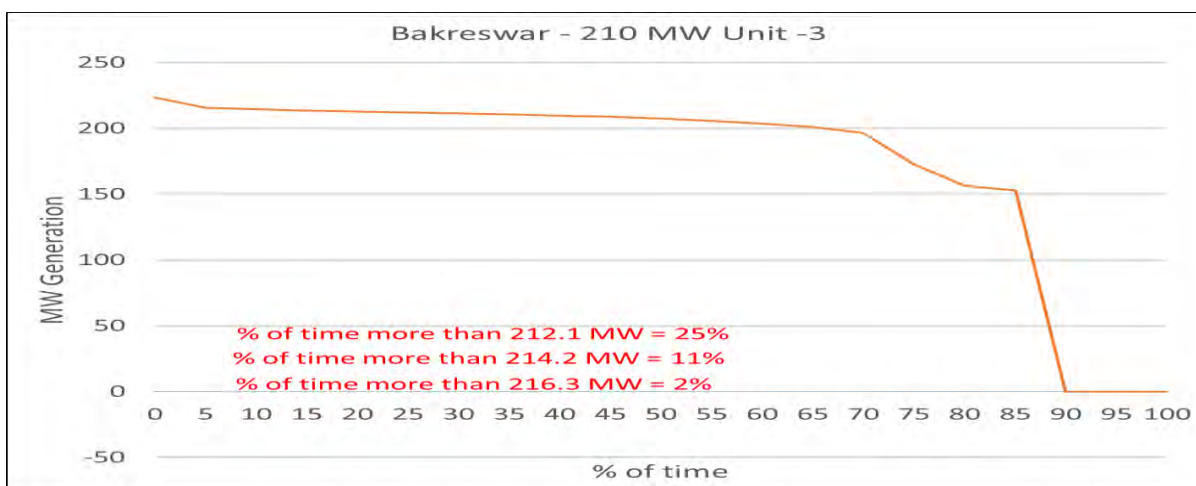
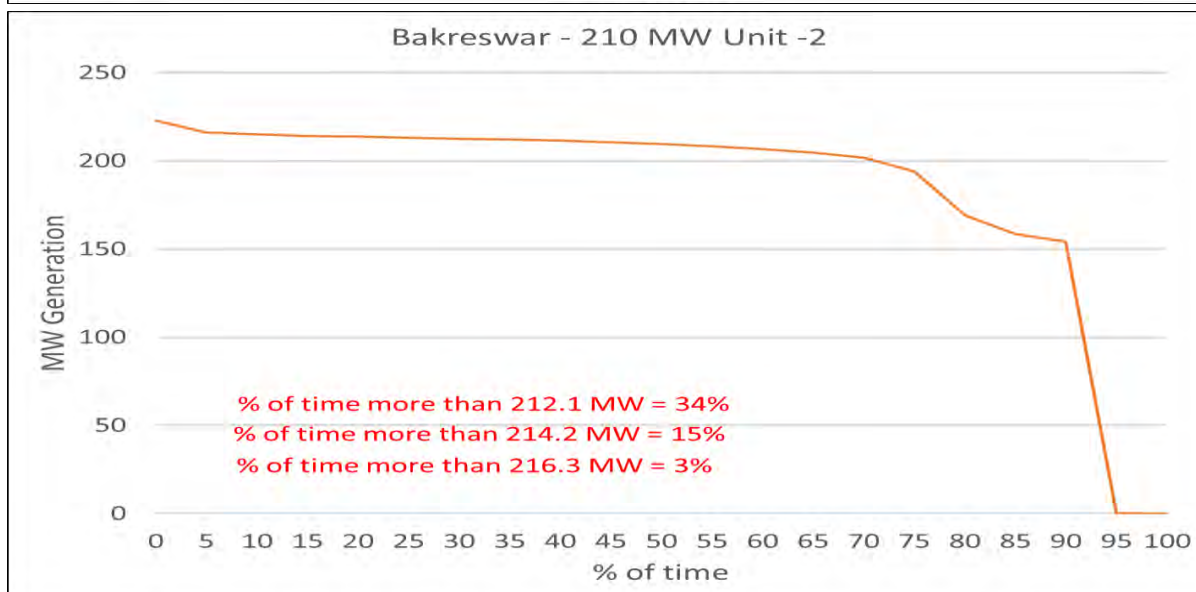
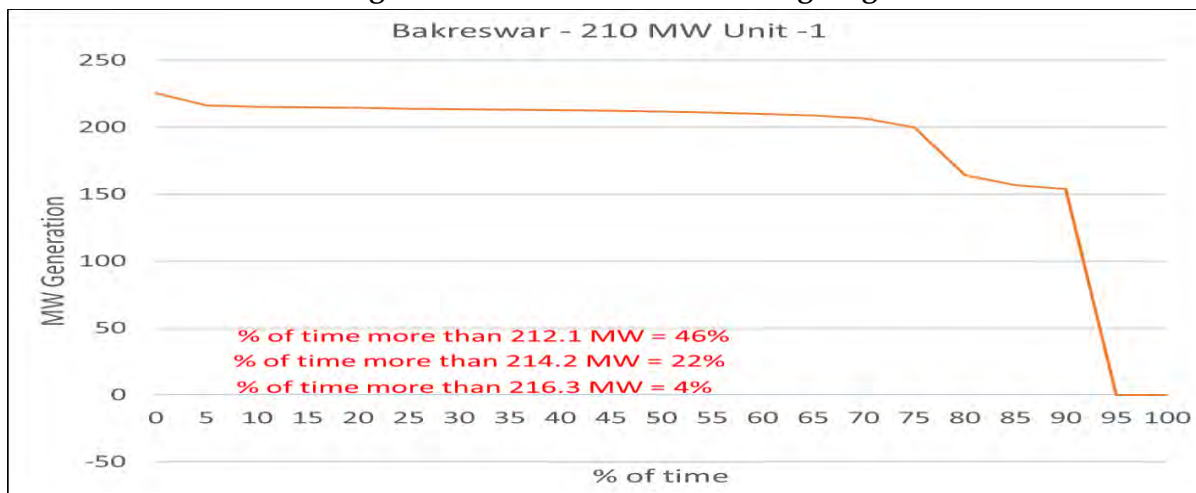
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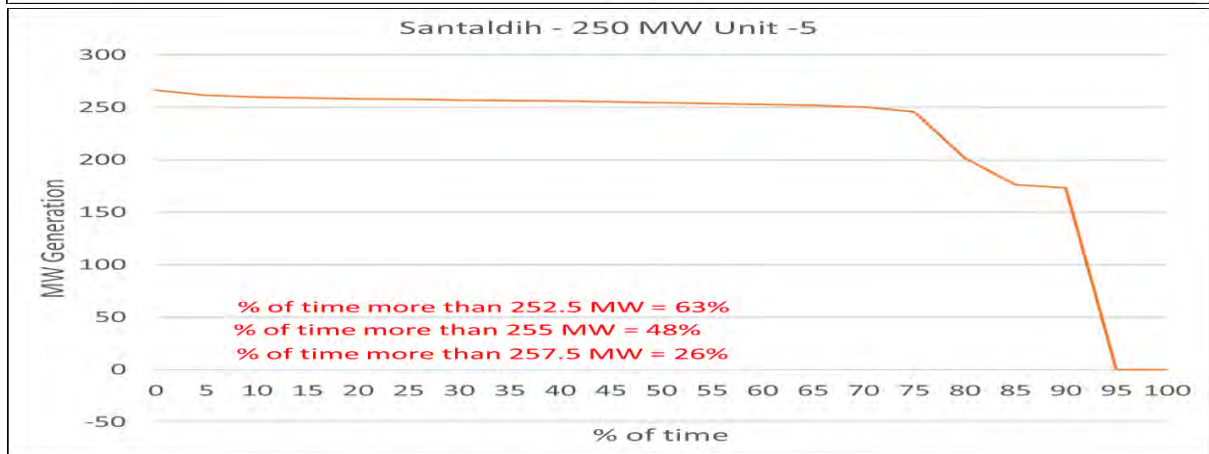
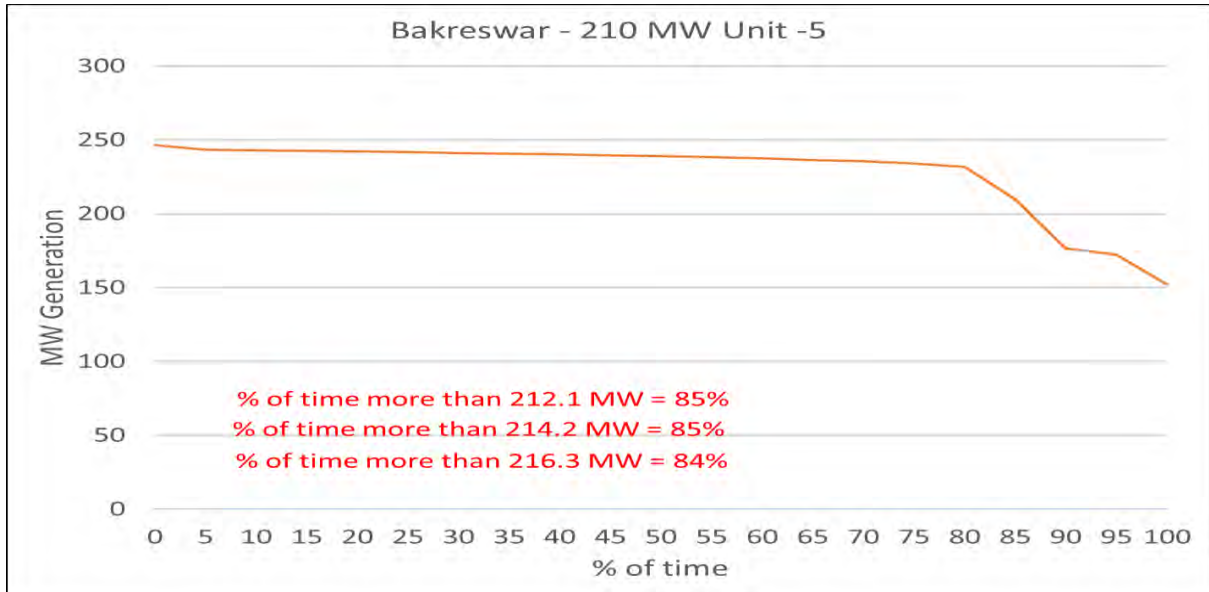
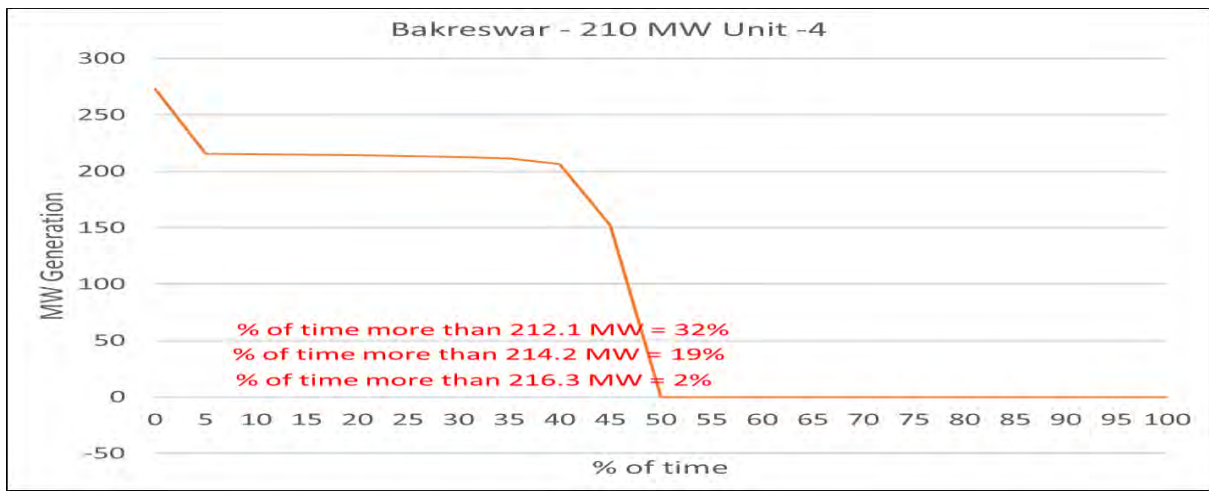


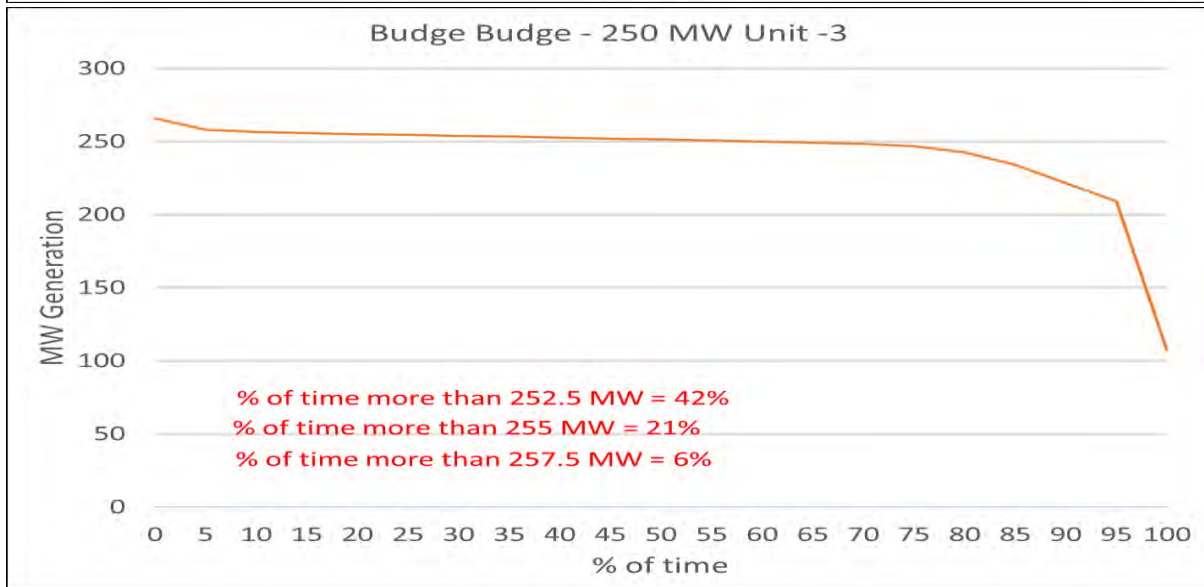
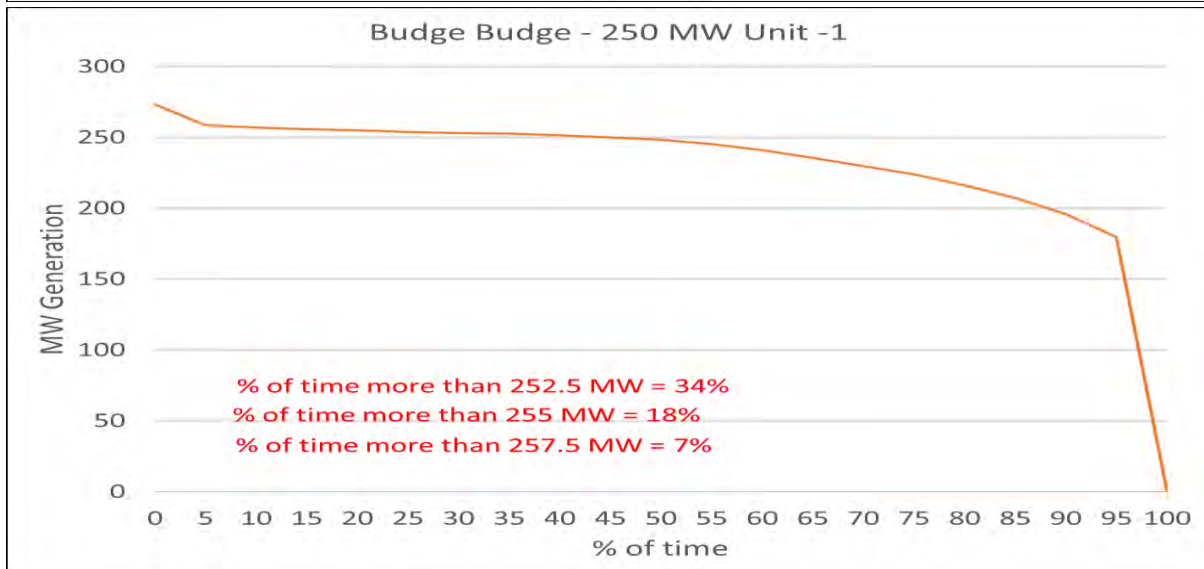
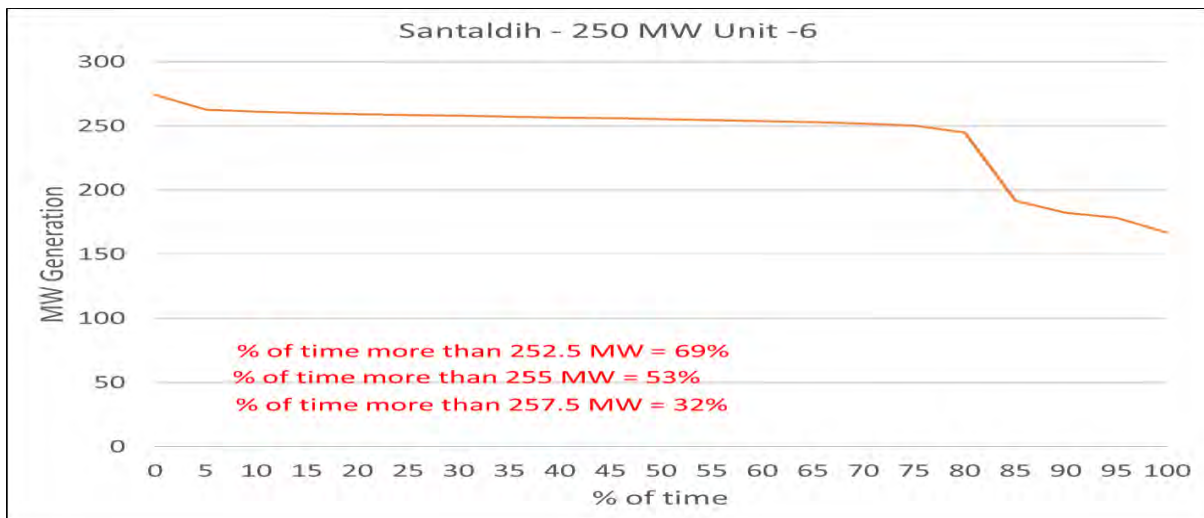
JITPL

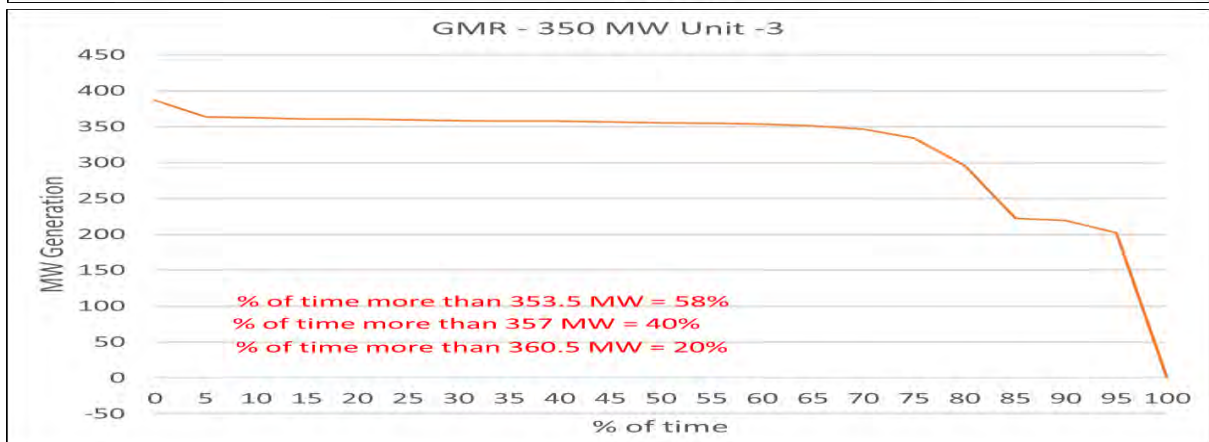
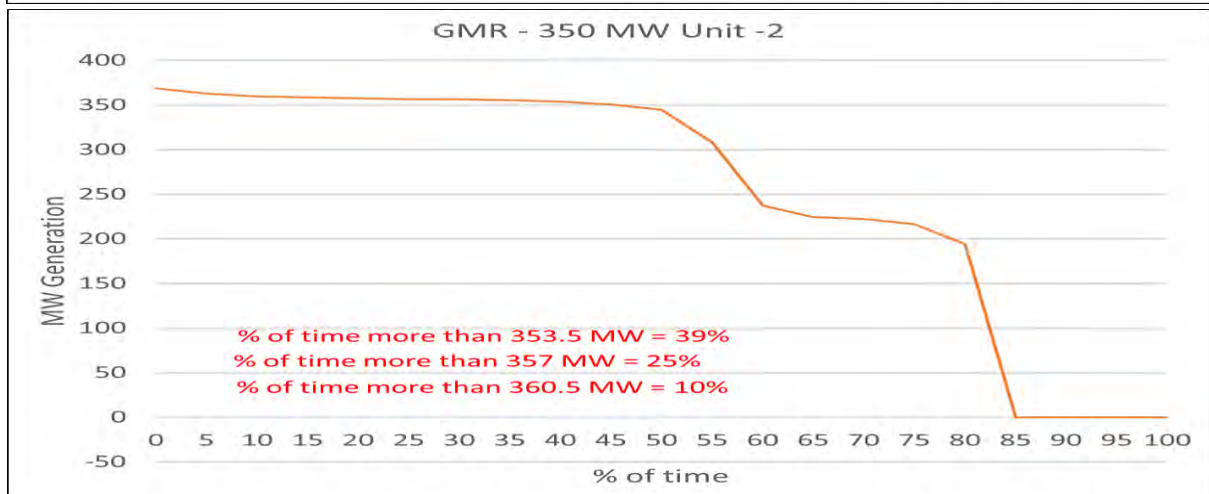
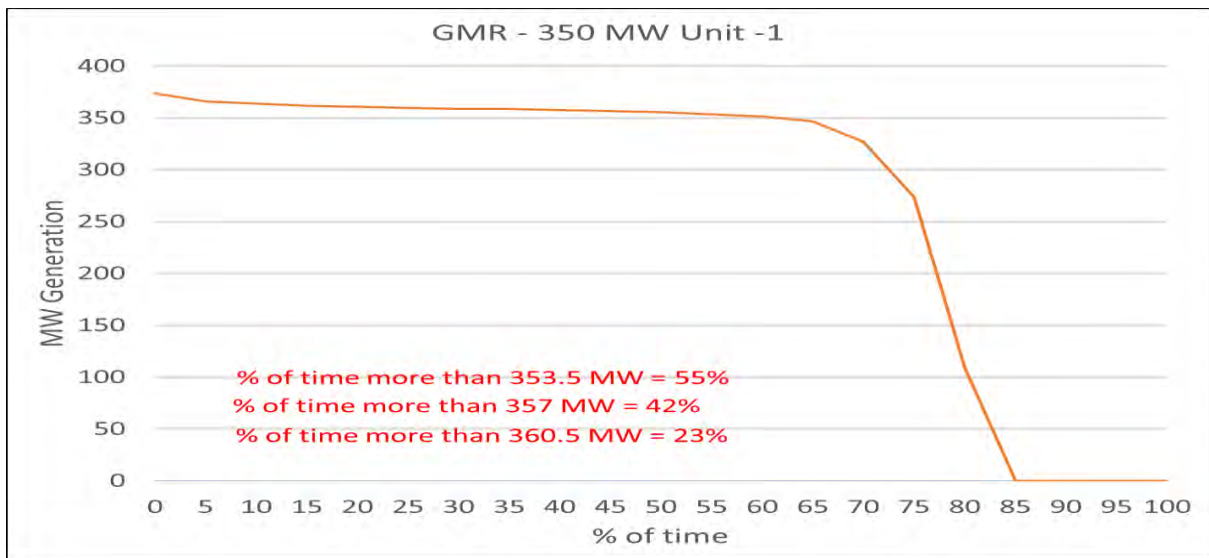


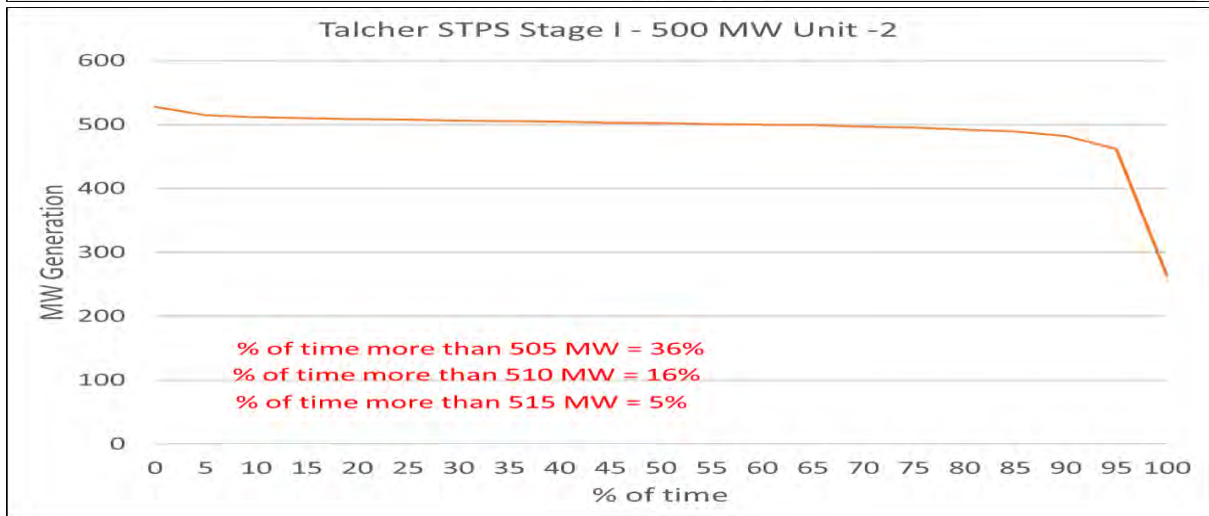
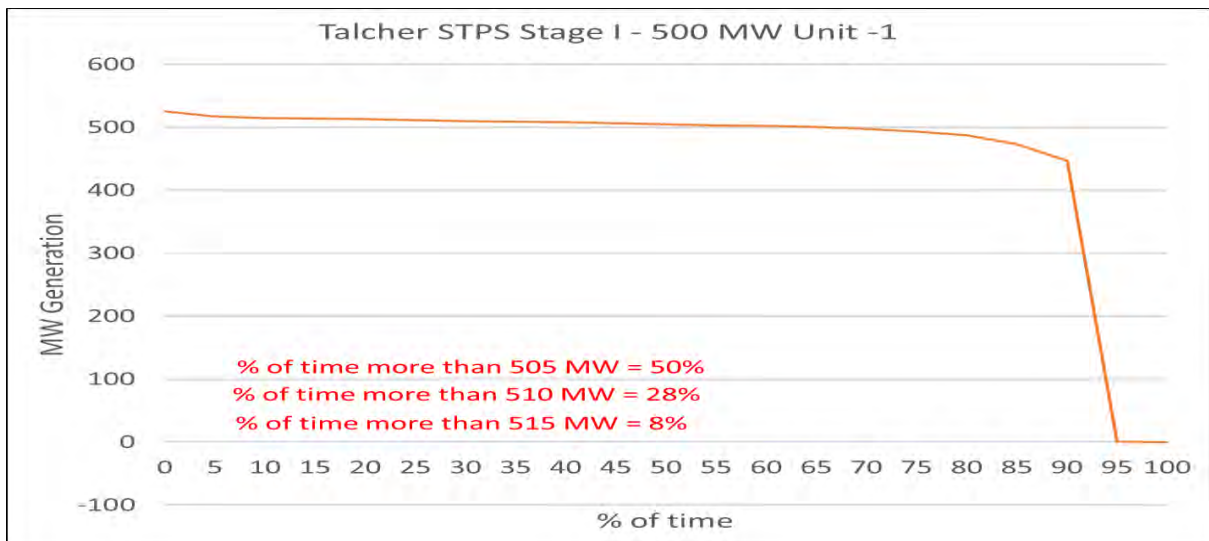
Generating units at more than MCR during August 2021











| POWER SYSTEM DEVELOPMENT FUND | | | | | | | | | | | | |
|--|-------------|---------|--|----------------|---------------------|-----------------------------------|---------------------|--|----------------------|--------------------------|--|---|
| Status of the Projects in Eastern Region | | | | | | | | | | | | |
| Sl No | State | Entity | Name of the scheme | Grant Approved | Grant sanctioned on | 1st Installment grant released on | Completion Schedule | Completion schedule w.r.t date of 1st instalment | Grant availed so far | Under process of release | Total awards amount of placed of till date | Latest status |
| 1 | Bihar | BSPTCL | Renovation and Upgradation of protection system of substations. (18) | 64.22 | 42135 | 42506 | 24 | 43236 | 56.04 | | 69.195 | 90% grant availed on award cost. |
| 2 | | | Installation of Capacitor bank in 20 Nos of Grid Sub Station. (74) | 18.882 | 42618 | 43550 | 24 | 44281 | 16.99 | | 21.55 | |
| | | | Total | 83.10 | | | | | 73.03 | | 90.745 | |
| 5 | Jharkhand | JUSNL | Renovation & Upgradation of protection system of Jharkhnad. (161) | 138.13 | 15-Nov-17 | 28-Mar-19 | 16 | 28-Jul-20 | 114.68 | 1.01 | 145.674 | 90% grant availed on award cost. Project closure is expected by Q-2 of 2021-22. |
| 6 | | | Reliable Communication & data acquisition system upto 132kV Substations ER. (177) | 22.36 | 24-May-19 | | 24 | | | | | Price bid has been opened. Tender on awarding stage. |
| | | | Total | 160.49 | | | | | 114.68 | | 145.674 | |
| 7 | Odisha | OPTCL | Renovation and Upgradation of protection system of substations. (08) | 162.50 | 11-May-15 | 22-Mar-16 | 24 | 22-Mar-18 | 46.04 | | 63.31 | Project Completed on Dec-20. Request for release of final 10 % fund has been placed. |
| 8 | | | Implementation of OPGW based reliable communication at 132 kv and above substations. (128) | 25.61 | 15-Nov-17 | 29-Mar-19 | 36 | 29-Mar-22 | 23.04 | | 51.22 | 90% grant availed on award cost. |
| 9 | | | Installation of 125 MVAR Bus Reactor along with construction of associated by each at 400kV Grid S/S of Mendhasal, Meramundali & New Duburi for VAR control & stabilisation of system voltage. (179) | 27.23 | 27-Jul-18 | 1-Apr-19 | 18 | 1-Oct-20 | 8.17 | | 8.166 | 30% grant availed |
| 10 | | | Implementation of Automatic Demand Management System (ADMS) in SLDC, Odisha. (196) | 2.93 | 24-May-19 | 19-Feb-20 | 10 | 19-Dec-20 | 0.29 | | 0.29 | 10% grant availed |
| 11 | | | Protection Upgradation and installation os Substation Automatic System (SAS) for seven nos of 220/132/33kV Substations (Balasore, Bidanasi, Budhipadar, Katapali, Narendrapur, New-Bolangir & Paradeep). (209) | 36.63 | 24-May-19 | 13-Feb-20 | 18 | 13-Aug-21 | 8.87 | | 8.87 | 30% grant availed |
| 12 | | OHPCCL | Renovation and Upgradation of protection and control system of OHPC. (109) | 22.35 | 22-May-17 | 25-May-18 | 24 | 25-May-20 | 14.94 | | 21.25 | 90% grant availed on award cost. |
| | | | Total | 277.25 | | | | | 101.35 | | 153.106 | |
| 14 | West Bengal | WBSETCL | Installation of switchable reactor & shunt capacitor for voltage improvement. (88) | 43.37 | 22-May-17 | 22-Jun-18 | 19 | 22-Jan-20 | 33.07 | | 40.83 | 90% grant availed on award cost. Will get completed by Oct'21 |
| 15 | | | Renovation & Modernisation of Transmission System. (87) | 70.13 | 22-May-17 | 25-Jun-18 | 25 | 25-Jul-20 | 63.12 | | 96.44 | 90% grant availed on award cost. Will get completed by Mar'22 |
| 16 | | | Installation of Bus Reactors at different 400kV Substation within the state of West Bengal for reactive power management of the Grid. (210) | 71.74 | 24-May-19 | 23-Oct-19 | 19 | 23-May-21 | 39.3 | | 45.62 | 30% grant availed on award cost. 04 Nos. of Reactors will be commissioned by December 2021. LoA of the 5th Reactor is yet to be placed. |
| 17 | | | Project for establishment of reliable communication and data acquisition at different substation at WBSWTCL. (222) | 31.19 | 24-May-19 | 23-Oct-19 | 25 | 23-Nov-21 | 3.12 | | | The tender has been been cancelled for OPGW. Re-tendering has to be done. |
| 18 | | | Implementation of Integrated system for Scheduling, Accounting, Metering and Settlement of Transactions (SAMAST) system in West Bengal. (197) | 10.08 | 43910 | | 12 | | | | | 10% grant not yet requested |
| 19 | | WBPDCL | Renovation and Modernization of 220/ 132 kV STPS switch yard and implementation of Substation Automation System. (72) | 23.48 | 5-Sep-16 | 18-May-17 | 18 | 18-Nov-18 | 21.13 | | 32.09 | Target date for completion of project is Sept,'21 subject to availability of S/D & Covid scenario. Request for release for final 10% grant has been placed. |
| 21 | | | Renovation and Modernization of switchyard and related protection system of different power stations (BTPS, BKTPS and KTPS) of WBPDCL (155) | 45.16 | 27-Jul-18 | 27-Mar-19 | 12 | 27-Mar-20 | 34.52 | | 41.68 | Target date for completion of project is Oct'21, subject to availability of S/D & Covid scenario. 90% grant availed on award cost. |
| | | | Total | 295.15 | | | | | 194.26 | | 256.661 | |

| POWER SYSTEM DEVELOPMENT FUND | | | | | | | | | | | | |
|--|--------|--------------|---|-----------------|---------------------|-----------------------------------|---------------------|--|---------------------|--------------------------|--|----------------------------------|
| Status of the Projects in Eastern Region | | | | | | | | | | | | |
| Sl No | State | Entity | Name of the scheme | Grant Approved | Grant sanctioned on | 1st Installment grant released on | Completion Schedule | Completion schedule w.r.t date of 1st instalment | Grant aviled so far | Under process of release | Total awards amount of placed of till date | Latest status |
| 22 | DVC | DVC | Renovation and Upgradation of the protection and control system of Ramgarh Sub Station. (81) | 25.96 | 2-Jan-17 | 31-May-17 | 24 | 31-May-19 | 22.95 | 2.57 | 28.603 | 90% grant availed on award cost. |
| 23 | | | Renovation and Modernization of control and protection system and replcement of equipment at Parulia, Durgapur, Kalyanewari, Giridhi Jamsedpur, Barjora, Burnpur, Dhanbad and Bundwan substation. (106) | 140.50 | 16-May-17 | 14-Dec-17 | 24 | 14-Dec-19 | 102.43 | 0.98 | 127.684 | |
| | | | Total | 166.46 | | | | | 125.38 | | 156.287 | |
| 24 | Sikkim | ENPD, Sikkim | Drawing of optical ground wire (OPGW) cables on existing 132kV & 66kV transmission lines and integration of leftover substations with State Load Despatch Centre, Sikkim. (173) | 10.00 | 24-May-19 | | 18 | | 3.00 | | 20 | 30% grant availed on award cost |
| | | | Total | 10.00 | | | | | 3.00 | | 20.00 | |
| 26 | ERPC | ERPC | Creation and Maintenance of web based protection database management. (67) | 20.00 | 17-Mar-16 | 28-Jun-16 | 18 | 28-Dec-17 | 14.83 | | 16.48 | Project Completed |
| 27 | | | Study Programme on power trading at NORD POOL Academy for Power System Engineers of Eastern Region. (122) | 5.46 | 27-Jul-18 | 27-Mar-19 | 13 | 27-Apr-20 | 4.61 | | 5.37 | |
| 28 | | | Traning Program for Power system Engineers of various constituents of Eastern Region. (117) | 0.61 | 27-Jul-18 | 11-Apr-19 | 24 | 11-Apr-21 | 0.54 | | 0.60888 | 90% grant availed on award cost. |
| | | | Total | 26.07 | | | | | 19.98 | | 22.45888 | |
| | | | GrandTotal | 1,018.53 | | | | | 631.68 | | 844.93 | |

Date of PFR testing scheduled /completed for generating stations in ER

| Sr. No | Station | Generating Unit | Test schedule | Remarks |
|--------|--------------------|-----------------|--|---|
| 1 | TALCHER STAGE 2 | 3 | Unit 3 - 5: 23-11-2020 to 28-11-2020 | Testing for unit 6 yet to be conducted |
| 2 | | 4 | | |
| 3 | | 5 | | |
| 4 | | 6 | | |
| 5 | Farakka | 2 | 01-02-2021 to 10-01- 2021 | Testing completed |
| 6 | | 3 | | |
| 7 | | 4 | | |
| 8 | | 5 | | |
| 9 | | 6 | | |
| 10 | Kahalgaon | 1 | August'21 | Testing completed for Unit 1 |
| 11 | | 5 | | |
| 12 | | 6 | | |
| 13 | | 7 | | |
| 14 | Barh | 4 | 18-02-2021 to 21-02- 2021 | Scheduled |
| 15 | | 5 | | |
| 16 | Teesta V | 1 | 07-01-2021 - 08-01-2021 | Testing completed |
| 17 | Teesta III | 1 | 30-01-2021 - 10-02-2021 | Testing completed |
| 18 | | 2 | | |
| 19 | | 3 | | |
| 20 | | 4 | | |
| 21 | | 5 | | |
| 22 | | 6 | | |
| 23 | Dikchu | 1 | Unit#1: 6th & 7th April' 21 Unit#2: 8th & 9th April' 21 | Scheduled |
| 24 | | 2 | | |
| 25 | MPL | 1 | - | Postponed due to some technical issue |
| 26 | | 2 | | |
| 27 | GMR | 1 | August 21 | Scheduled |
| 28 | | 2 | | |
| 29 | | 3 | | |
| 30 | JITPL | 1 | August 21 | Scheduled |
| 31 | | 2 | | |
| 32 | | 3 | | |
| 33 | NPGCL | 1 | August'21 | Testing completed |
| 34 | BRBCL | 2& 3 | 1 st Week of August'21 | Testing completed |
| 35 | APNRL | 1 & 2 | July-August'21 | Testing completed |
| | | | | |

| Power Plant | Unit No | PSS tuned (Yes/No) | PSS in Service (Yes/No) | Last PSS Tuning Date | Whether Done in Last 3 Years | Whether Next to be planned | Planned Next PSS Tuning |
|--------------------|---------|--------------------|-------------------------|----------------------|------------------------------|----------------------------|---|
| West Bengal | | | | | | | |
| Kolaghat-WBPDCL | 1 | No | Yes | Long Back | No | Yes | Under retirement |
| Kolaghat-WBPDCL | 2 | No | Yes | Long Back | No | Yes | Under retirement |
| Kolaghat-WBPDCL | 3 | No | Yes | Long Back | No | Yes | When Unit will be on Bar |
| Sagardighi-WBPDCL | 2 | No | No | Long Back | No | Yes | When Unit will be on Bar |
| Bakreshwar-WBPDCL | 2 | Yes | Yes | 2019 | Yes | Yes | Retuning to be done as from plot response is not good |
| Bakreshwar-WBPDCL | 3 | Yes | Yes | 2019 | Yes | Yes | Retuning to be done as from plot response is not good |
| Bakreshwar-WBPDCL | 4 | Yes | Yes | 2019 | Yes | Yes | Retuning to be done as from plot response is not good |
| Bakreshwar-WBPDCL | 5 | Yes | Yes | 2019 | Yes | Yes | Retuning to be done as from plot response is not good |
| DPL | 7 | No | No | N.A | No | Yes | Planned in March 2021 |
| DPL | 8 | No | Yes | No | No Detail | Yes | To be updated by WBPDCL/DPL |
| PPSP | 1 | No | Yes | 2009 | No | Yes | To be updated by WBSEDCL |
| PPSP | 2 | No | Yes | 2009 | No | Yes | To be updated by WBSEDCL |
| PPSP | 3 | No | Yes | 2009 | No | Yes | To be updated by WBSEDCL |
| PPSP | 4 | No | Yes | 2009 | No | Yes | To be updated by WBSEDCL |
| TLDP III | 4 x 33 | | | No Detail | No Detail | Yes | To be updated by WBSEDCL |
| TLDP IV | 4 X 44 | | | No Detail | No Detail | Yes | To be updated by WBSEDCL |
| CESC | | | | | | | |
| Budge Budge-CESC | 1 | Yes | Yes | 2015 | No | Yes | 2021-22 |
| Budge Budge-CESC | 2 | Yes | Yes | 2015 | No | Yes | 2021-22 |
| DVC | | | | | | | |
| Bokaro B 210 MW | 3 | | | | No Detail | Yes | Unit Is out of Service |
| Mejia-DVC | 4 | Yes | Yes | 2009 | No | Yes | Jun-21 |
| Raghunathpur-DVC | 1 | No | No | | No Detail | Yes | Will be done after AOH |
| Raghunathpur-DVC | 2 | No | No | | No Detail | Yes | Jun-21 |
| Koderma-DVC | 1 | Yes | Yes | 2013 | No | Yes | Sep-21 |
| Waria | 4 | Yes | Yes | 2008 | No | Yes | Unit Is out of Service |
| ISGS | | | | | | | |
| Kahalgaon NTPC | 1 | Yes | Yes | 2017 | Yes | Yes | Apr-21 |
| Kahalgaon NTPC | 2 | Yes | Yes | 2018 | Yes | Yes | April 2021 (During AOH) |
| Kahalgaon NTPC | 3 | Yes | Yes | 2016 | Yes | Yes | Jul-21 |
| Kahalgaon NTPC | 4 | Yes | Yes | 2015 | No | Yes | Mar-21 |

| | | | | | | | |
|-----------------|-----------|-----|-----|---------------------------|------------|-----|----------------------------------|
| Kahalgaon NTPC | 6 | Yes | Yes | 2009 | No | Yes | Mar-21 |
| Talcher Stage 2 | 3 | Yes | Yes | 2016 | Yes | Yes | July 2021 (As per SRPC decision) |
| Talcher Stage 2 | 4 | Yes | Yes | No Details | No Details | Yes | July 2021 (As per SRPC decision) |
| Talcher Stage 2 | 5 | Yes | Yes | No Details | No Details | Yes | July 2021 (As per SRPC decision) |
| Talcher Stage 2 | 6 | Yes | Yes | 2016 | Yes | Yes | July 2021 (As per SRPC decision) |
| Barh NTPC | 4 | | | 2015 | | Yes | In Next AOH |
| Barh NTPC | 5 | | | During Unit commissioning | | Yes | June 2021 (AOH) |
| Teesta V | 1 | Yes | Yes | 2008 | No | Yes | Jun-21 |
| Teesta V | 2 | Yes | Yes | 2008 | No | Yes | Jun-21 |
| Teesta V | 3 | Yes | Yes | 2008 | No | Yes | Jun-21 |
| BRBCL | 1 | No | Yes | Vendor to Do | No | Yes | Jun-21 |
| BRBCL | 2 | Yes | Yes | 2019 | Yes | Yes | Jun-21 |
| BRBCL | 3 | No | Yes | Vendor to Do | No | Yes | Jun-21 |
| KBUNL | 1 | Yes | Yes | 2014 | No | Yes | 2021-22 |
| KBUNL | 2 | Yes | Yes | 2014 | No | Yes | 2021-22 |
| KBUNL | 3 | Yes | Yes | Not Available | No | Yes | 2021-22 |
| KBUNL | 4 | Yes | Yes | Not Available | No | Yes | 2021-22 |
| Rangit | 3 x 20 | | | Not Available | No | Yes | To be updated by NHPC |
| IPP | | | | | | | |
| Jorethang | 1 | Yes | Yes | 2015 | No | Yes | Apr-21 |
| Jorethang | 2 | Yes | Yes | 2015 | No | Yes | Apr-21 |
| ADHUNIK | 1 | Yes | YES | 2013 | No | Yes | Aug-21 |
| ADHUNIK | 2 | Yes | YES | 2013 | No | Yes | Aug-21 |
| JITPL | 1 | Yes | Yes | 2016 | Yes | Yes | Jul-21 |
| JITPL | 2 | Yes | Yes | 2016 | Yes | Yes | Jul-21 |
| GMR | 1 | Yes | Yes | 2013 | No | Yes | May-21 |
| GMR | 2 | Yes | Yes | 2013 | No | Yes | May-21 |
| GMR | 3 | Yes | Yes | 2013 | No | Yes | May-21 |
| Orissa | | | | | | | |
| IB TPS | 1 | Yes | Yes | 2011 | No | Yes | Mar'2021 |
| IB TPS | 2 | Yes | Yes | 2012 | No | Yes | Mar'2021 |
| Upper Indravati | 1 | Yes | No | 2015 | No | Yes | To be updated by OHPC |
| Upper Indravati | 2 | Yes | No | 2015 | No | Yes | To be updated by OHPC |
| Upper Indravati | 3 | Yes | No | 2000 | No | Yes | To be updated by OHPC |
| Upper Indravati | 4 | Yes | No | 2001 | No | Yes | To be updated by OHPC |
| Balimela | 1 (60 MW) | | | No detail | | Yes | To be updated by OHPC |
| Balimela | 2 (60 MW) | | | No detail | | Yes | To be updated by OHPC |
| Balimela | 3 (60 MW) | No | No | Not tuned | No | Yes | To be updated by OHPC |
| Balimela | 4 (60 MW) | No | No | Not tuned | No | Yes | To be updated by OHPC |
| Balimela | 5 (60 MW) | No | No | Not tuned | No | Yes | To be updated by OHPC |

| | | | | | | | |
|------------------|-----------|-----|-----|-----------|-----|-----|---|
| Balimela | 6 (60 MW) | No | No | Not tuned | No | Yes | To be updated by OHPC |
| Balimela | 7 (75 MW) | No | No | Not tuned | No | Yes | To be updated by OHPC |
| Balimela | 8 (75 MW) | No | No | Not tuned | No | Yes | To be updated by OHPC |
| Upper Kolab | 1 | Yes | Yes | 2007 | No | Yes | To be updated by OHPC |
| Upper Kolab | 2 | Yes | Yes | 2007 | No | Yes | To be updated by OHPC |
| Upper Kolab | 3 | Yes | Yes | 2007 | No | Yes | To be updated by OHPC |
| Upper Kolab | 4 | Yes | Yes | 2007 | No | Yes | To be updated by OHPC |
| Rengali | 1 | Yes | Yes | Not tuned | No | Yes | To be updated by OHPC |
| Rengali | 2 | Yes | Yes | Not tuned | No | Yes | To be updated by OHPC |
| Rengali | 3 | Yes | Yes | Not tuned | No | Yes | To be updated by OHPC |
| Rengali | 4 | Yes | Yes | Not tuned | No | Yes | To be updated by OHPC |
| Rengali | 5 | No | Yes | Not tuned | No | Yes | To be updated by OHPC |
| Sterlite | 4 X 600 | | | No detail | | Yes | To be updated by SLDC Orissa |
| Jharkhand | | | | | | | |
| Tenughat | 1 | Yes | Yes | 2017 | Yes | Yes | No report has been submitted. So tuning to be planned |
| Tenughat | 2 | Yes | Yes | 2017 | Yes | Yes | No report has been submitted. So tuning to be planned |
| Subarnrekha | 2 X 65 | | | | | Yes | To be updated |
| Bihar | | | | | | | |
| BTPS | 6 (110) | | | | | Yes | To be updated by BSPGCL |
| BTPS | 7 (110) | | | | | Yes | To be updated by BSPGCL |
| BTPS | 8 | | | | | Yes | To be updated by BSPGCL |
| BTPS | 9 | | | | | Yes | To be updated by BSPGCL |
| Bhutan | | | | | | | |
| Tala | 1 | No | Yes | | | Yes | To be updated by BPC |
| Tala | 2 | No | Yes | | | Yes | To be updated by BPC |
| Tala | 3 | No | Yes | | | Yes | To be updated by BPC |
| Tala | 4 | No | Yes | | | Yes | To be updated by BPC |
| Tala | 5 | No | Yes | | | Yes | To be updated by BPC |
| Tala | 6 | No | Yes | | | Yes | To be updated by BPC |
| Chukha | 1 | No | Yes | 2005 | No | Yes | To be updated by BPC |
| Chukha | 2 | No | Yes | 2005 | No | Yes | To be updated by BPC |
| Chukha | 3 | No | Yes | 2005 | No | Yes | To be updated by BPC |
| Chukha | 4 | No | Yes | 2005 | No | Yes | To be updated by BPC |
| Mangdechu | 1 | No | Yes | | | Yes | To be updated by BPC |
| Mangdechu | 2 | No | Yes | | | Yes | To be updated by BPC |
| Mangdechu | 3 | No | Yes | | | Yes | To be updated by BPC |
| Mangdechu | 4 | No | Yes | | | Yes | To be updated by BPC |

Annexure-D1

Anticipated Peak Demand (in MW) of ER & its constituents
Oct-21

| 1 | BIHAR | Demand (MW) | Energy Requirement (MU) |
|-----|--|-------------|-------------------------|
| | NET MAX DEMAND | 6000 | 3315 |
| | NET POWER AVAILABILITY- Own Sources | 685 | 185 |
| | Central Sector+Bi-Lateral | 5850 | 3304 |
| | SURPLUS(+)/DEFICIT(-) | 535 | 174 |
| 2 | JHARKHAND | | |
| | NET MAXIMUM DEMAND | 1770 | 1025 |
| | NET POWER AVAILABILITY- Own Source | 404 | 200 |
| | Central Sector+Bi-Lateral+IPP | 1174 | 673 |
| | SURPLUS(+)/DEFICIT(-) | -192 | -152 |
| 3 | DVC | | |
| | NET MAXIMUM DEMAND | 3035 | 1939 |
| | NET POWER AVAILABILITY- Own Source | 5131 | 2950 |
| | Central Sector+MPL | 452 | 314 |
| | Bi- lateral export by DVC | 1534 | 1141 |
| | SURPLUS(+)/DEFICIT(-) AFTER EXPORT | 1014 | 184 |
| 4 | ODISHA | | |
| | NET MAXIMUM DEMAND (OWN) | 4400 | 2649 |
| | NET MAXIMUM DEMAND (In Case, 600 MW CPP Drawal) | 5400 | 3250 |
| | NET POWER AVAILABILITY- Own Source | 4247 | 2530 |
| | Central Sector | 1980 | 1036 |
| | SURPLUS(+)/DEFICIT(-) (OWN) | 1827 | 917 |
| | SURPLUS(+)/DEFICIT(-) (In Case, 600 MW CPP Drawal) | 827 | 316 |
| 5 | WEST BENGAL | | |
| 5.1 | WBSEDCL | | |
| | NET MAXIMUM DEMAND | 6900 | 3610 |
| | NET MAXIMUM DEMAND (Incl. B'Desh+Sikkim) | 7040 | 3701 |
| | NET POWER AVAILABILITY- Own Source (Incl. DPL) | 5308 | 2468 |
| | Central Sector+Bi-lateral+IPP&CPP+TLDP | 2764 | 1478 |
| | EXPORT (TO B'DESH & SIKKIM) | 10 | 7 |
| | SURPLUS(+)/DEFICIT(-) AFTER EXPORT | 1032 | 245 |
| 5.2 | IPCL | | |
| | IPCL Demand | 130 | 84 |
| | IPCL Import | 130 | 84 |
| | SURPLUS(+)/DEFICIT(-) | 0 | 0 |
| 5.3 | CESC | | |
| | NET MAXIMUM DEMAND | 1920 | 940 |
| | NET POWER AVAILABILITY- Own Source | 770 | 498 |
| | FROM OTHER SOURCE (INCL. IPP/CPP-29-30 MU/M) | 610 | 126 |
| | IMPORT FROM HEL | 540 | 316 |
| | TOTAL AVAILABILITY OF CESC | 1920 | 940 |
| | SURPLUS(+)/DEFICIT(-) | 0 | 0 |
| | WEST BENGAL (WBSEDCL+CESC+IPCL) | | |
| | (excluding DVC's supply to WBSEDCL's command area) | | |
| | NET MAXIMUM DEMAND | 8950 | 4634 |
| | NET POWER AVAILABILITY- Own Source | 6078 | 2966 |
| | CS SHARE+BILATERAL+IPP/CPP+TLDP+HEL | 3914 | 1920 |
| | SURPLUS(+)/DEFICIT(-) BEFORE WBSEDCL'S EXPORT | 1042 | 252 |
| | SURPLUS(+)/DEFICIT(-) AFTER WBSEDCL'S EXPORT | 1032 | 245 |
| 6 | SIKKIM | | |
| | NET MAXIMUM DEMAND | 113 | 50 |
| | NET POWER AVAILABILITY- Own Source | 8 | 3 |
| | Central Sector | 200 | 120 |
| | SURPLUS(+)/DEFICIT(-) | 95 | 73 |
| | EASTERN REGION | | |
| | NET MAXIMUM DEMAND | 23792 | 13612 |
| | NET MAXIMUM DEMAND (In Case, 600 MW CPP Drawal of Odisha) | 24773 | 14213 |
| | BILATERAL EXPORT BY DVC | 1534 | 1141 |
| | EXPORT BY WBSEDCL TO SIKKIM & B'desh | 10 | 7 |
| | EXPORT TO B'DESH & NEPAL OTHER THAN DVC | 642 | 419 |
| | NET TOTAL POWER AVAILABILITY OF ER | 30123 | 16201 |
| | (INCLUDING CS ALLOCATION +BILATERAL+IPP/CPP+HEL) | | |
| | SURPLUS(+)/DEFICIT(-) | 4145 | 1022 |
| | SURPLUS(+)/DEFICIT(-) (In Case, 600 MW CPP Drawal of Odisha) | 3164 | 421 |