भारत सरकार
विद्युत मंत्रालय
पूर्वी क्षेत्रीय विद्युत समिति
GOVERNMENT OF INDIA
MINISTRY OF POWER
EASTERN REGIONAL POWER COMMITTEE

No. ERPC/TCC&Committee/14/2020/ 10139 - 10205 Date: 01.01.2020

To:

1. Members of Eastern Regional Power Committee.
2. Members of TCC.

**Subject: Minutes of 42nd ERPC & TCC Meetings.**

Sir,

The minutes of the 42nd TCC & ERPC meetings held on 12th & 13th December 2019 respectively in Port Blair have been issued and uploaded on www.erpc.gov.in. As per the decision of ERPC distribution of hard copies of the Minutes of Meeting has been discontinued as a Go Green initiative.

Yours faithfully,

Sandeep Banerjee 01/01/2020

( J. Bandyopadhyay )
Member Secretary

Attach.: As above.

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**ERPC Members :**

1. Chairperson, ERPC & Principal Chief Engineer-cum-Secretary, Energy & Power Department, Govt. of Sikkim, Kazi Road, Gangtok – 737101, Sikkim.
2. Chairman-cum-Managing Director, GRIDCO Ltd., Janpath, Bhubaneshwar-751022.
3. Chairman-cum-Managing Director, Odisha Power Transmission Corporation Ltd., Janpath, Bhubaneswar - 751022.
4. Chairman-cum-Managing Director, OHPC Ltd., Orissa State Police Housing & Welfare Corporation Bldg. Vanivihar, Janpath, Bhubaneswar- 751022.
5. Managing Director, OPGC Ltd., Zone-A, 7th Floor, Fortune Towers, Chandrasekharpur, Bhubaneswar-751023.
6. Chairman-cum-Managing Director, Jharkhand Urja Vikas Nigam Limited , Engineering Building, HEC, Dhurwa, Ranchi-834004.
7. Managing Director, Jharkhand Urja Sancharan Nigam Limited , Engineering Building, HEC, Dhurwa, Ranchi-834004.
8. Managing Director, Jharkhand Bijli Vitaran Nigam Limited , Engineering Building, HEC, Dhurwa, Ranchi-834004.
9. Managing Director, Tenughat Vidyut Nigam Ltd., Hinoo, Doranda, Ranchi – 834002
10. Chairman-cum- Managing Director, Bihar State Power Holding Company Ltd., Vidyut Bhavan , Bailey Road, Patna-800021.
11. Managing Director, Bihar State Power Transmission Company Limited, Vidyut Bhavan , Bailey Road, Patna-800021.
12. Managing Director, North Bihar Power Distribution Company Limited, Vidyut Bhavan , Bailey Road, Patna-800021.
13. Chairman & Managing Director, West Bengal State Electricity Distribution Company Ltd., Vidyut Bhavan, 7th Floor, Block-DJ, Sector-II, Bidhannagar,Kolkata-700091.
14. Managing Director, West Bengal State Electricity Transmission Company Ltd., Vidyut Bhavan, 8th Floor, Block-DJ, Sector-II, Bidhannagar,Kolkata-700091.
15. Chairman & Managing Director, West Bengal Power Development Corporation Ltd., Bidyut Unnayan Bhavan, 3/C, Block LA , Sector-III, Bidhannagar, Kolkata-700106.
16. Managing Director, Durgapur Projects Ltd., Administrative Building, Durgapur-713201, West Bengal.
17. Chairman, Damodar Valley Corporation, DVC Towers, VIP Road, Kolkata -700054.
18. Member (GO&D), Central Electricity Authority, Sewa Bhawan , R.K. Puram, New Delhi-110066.
19. Director (Commercial), NTPC Ltd., Core-7, SCOPE Complex, Lodhi Road, New Delhi -110003.
20. Director (Technical), NHPC Ltd., NHPC Office Complex, Sector-33, Faridabad, Haryana-121003.
21. Director (Operations), Power Grid Corporation of India Ltd., Saudamini, Plot No. 2, Sector-29, Gurgaon-122001.
22. Executive Director, ERLDC, POSOCO, 14 Golf Club Road, Tollygunge, Kolkata – 700033.
23. Chief General Manager, NLDC, POSOCO, B-9, Qutab Institutional Area, Katwaria Sarai,New Delhi-110016.
24. Director (C&O), PTC India Ltd., 2nd floor, NBCC Tower,15 Bhikaji Cama Place, New Delhi-110066.
25. Chief Executive Officer, NTPC Vidyut Vyapar Nigam Limited, SCOPE Complex, Core-5, 1st & 2nd Floor, Lodhi Road, New Delhi-110003.
26. Managing Director, Tata Power Trading Company Limited, B12/13, 2nd Floor, Shatabdi Bhavan, Sector-4, Noida-201301, Uttar Pradesh.
27. Managing Director (Generation), CESC Ltd., CESC House, 1 Chowringhee Square, Kolkata-700001.
28. Chief Executive Officer, Maithon Power Ltd., Village-Dambhui, P.O. Barbindia, Dist.-Dhanbad, Jharkhand-828205.
29. Managing Director, Adhunik Power & Natural Resources Ltd., Lansdowne Towers, 5th Floor, 2/1A Sarat Bose Road, Kolkata-700020.
30. Chief Operating Officer, GMR Kamalanga Energy Ltd., AT/PO-Kamalanga, PS-Kantabania, Via-Meramundali, Dist.-Dhenkanal, Odisha-759121.
31. Chief Executive Officer, Jindal India Thermal Power Limited, Plot No-2, Pocket-C, 2nd Floor, Nelson Mandela Road, Vasant Kunj, New Delhi-110070.
32. Managing Director, Teesta Urja Limited, 2nd Floor, Vijaya Building, 17 Barakhamba Road, New Delhi-110001.

**TCC Members :**

1. Chairperson, TCC & Principal Chief Engineer-II, Energy & Power Dept., Govt. of Sikkim, Kazi Road, Gangtok-737101.
2. Director (Commercial), GRIDCO Ltd., Janpath, Bhubaneswar-751022.
3. Director (Operation), Odisha Power Transmission Corporation Ltd., Janpath, Bhubaneswar - 751022.
4. Director (Operation), Orissa Hydro Power Corporation Ltd, Orissa State Police Housing & Welfare Corporation Building, Vanivihar Chowk, Janpath, Bhubaneswar-751022.
5. Director (Operation), Orissa Power Generation Corporation Ltd, Zone-A, 7th floor, Fortune Towers, Chandrasekharpur, Bhubaneswar-751023.
6. Director (Project), Jharkhand Urja Sancharan Nigam Limited , Engineering Building, HEC, Dhurwa, Ranchi-834004.
7. Chief Engineer (S&D-JBVNL), Jharkhand Urja Vikas Nigam Limited, Engineering Building, HEC, Dhurwa, Ranchi-834004.
8. Chief Engineer (S&D), Jharkhand Bijli Vitaran Nigam Limited , Engineering Building, HEC, Dhurwa, Ranchi-834004.
9. General Manager, Tenughat TPS, Lalpania, Dist- Bokaro, Jharkhand-829149.
10. Director (Operation), Bihar State Power Transmission Company Limited, Vidyut Bhavan , Bailey Road, Patna-800021.
11. Chief Engineer (Commercial), Bihar State Power Holding Company Ltd., Vidyut Bhavan , Bailey Road, Patna-800021.
12. Director (Project), North Bihar Power Distribution Company Limited , Vidyut Bhavan , Bailey Road, Patna-800021.
13. Director (Operations), West Bengal State Electricity Transmission Company Ltd., Vidyut Bhavan, 8th Floor, Block-DJ, Sector-II, Bidhannagar, Kolkata-700091.
14. Director (R&T), West Bengal State Electricity Distribution Company Ltd., Vidyut Bhavan, 7th Floor, Block-DJ, Sector-II, Bidhannagar, Kolkata-700091.-
15. Director (O&M), WBPDCL, Bidyut Unnayan Bhavan, 3C, Block-LA, Sector-III, Bidhannagar, Kolkata-700106.
16. General Manager (Technical), Durgapur Projects Ltd., Administrative Building, Durgapur-713201, West Bengal.
17. Executive Director (Commercial), Damodar Valley Corporation, DVC Tower, VIP Road, Kolkata-700054.
18. Chief Engineer (GM & NPC), CEA, Sewa Bhawan, R.K. Puram , New Delhi-110066.
19. Regional Executive Director (ER-I), NTPC Ltd., 2nd floor, Lok Nayak Jai Prakash Bhawan, Dak Bunglow Chowk, Patna-800001.
20. Regional Executive Director (ER-II), NTPC Ltd., 3rd Floor, OLIC Building, Plot No.N-17/2, Nayapalli, Bhubaneswar-751012.
21. Executive Director (O&M), NHPC Ltd., NHPC Office Complex, Sector-33, Faridabad-121003, Haryana.
22. Executive Director (ER-I), Power Grid Corporation of India Ltd, Board Colony, Shastri Nagar, Patna-800023.
23. Executive Director (ER-II), Power Grid Corporation of India Ltd, CF-17, Action Area-I, Newtown, Rajarhat, Near Axis Mall, Kolkata-700156.
24. Executive Director (Odisha Project), Power Grid Corporation of India Ltd, Plot No.4, Unit-41, Niladri Vihar, Chandrasekharpur, Bhubaneswar-751021.
25. Executive Director, ERLDC, POSOCO, 14 Golf Club Road, Kolkata –700 033.
26. Chief General Manager, NLDC, POSOCO, B-9 Qutab Institutional Area, Katwaria Sarai,New Delhi-110016.
27. Executive Director (Marketing), PTC India Ltd., NBCC Tower, 15 Bhikaji Cama Place, New Delhi-110066.
28. Chief General Manager, NTPC Vidyut Vyapar Nigam Limited, SCOPE Complex, Core-5, 1st & 2nd Floor, Lodhi Road, New Delhi-110003.
29. The Head (Marketing), Tata Power Trading Company Limited, B-12/13, 2nd Floor, Shatabdi Bhavan, Sector-4, Noida-201301, Uttar Pradesh.
30. Vice President (SO), CESC Ltd, CESC House, 1 Chowringhee Square, Kolkata-700001.
31. Station Head & General Manager (O&M), Maithon Power Ltd., Village-Dambhui, P.O. Barbindia, Dist.- Dhanbad, Jharkhand-828205.
32. Director, Adhunik Power & Natural Resources Ltd., Lansdowne Towers, 5th Floor, 2/1A Sarat Bose Road, Kolkata-700020.
33. The Head (O&M), GMR Kamalanga Energy Ltd., AT/PO-Kamalanga, PS-Kantabania, Via-Meramundali, Dist.-Dhenkanal, Odisha-759121.
34. Chief Operating Officer, Jindal India Thermal Power Limited, Plo No-2, Pocket-C, 2nd Floor, Nelson Mandela Road, Vasant Kunj, New Delhi-110070.
35. Managing Director, Teesta Urja Limited, 2nd Floor, Vijaya Building, 17 Barakhamba Road, New Delhi-110001.


Minutes

of

# 42nd ERPC Meeting

of

# EASTERN REGIONAL POWER COMMITTEE

**Date: 13rd December, 2019**

**Venue: Port Blair**

# EASTERN REGIONAL POWER COMMITTEE, KOLKATA

## MINUTES OF 42nd ERPC MEETING

**Date: 13.12.2019** **Place: Port Blair**

**In Chair:** Shri. A. B. Rai, Chairperson, ERPC & Principal Chief Engineer-cum-Secretary, Energy & Power Department, Govt. of Sikkim

**Host:** PTC India Ltd.

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

**Shri. A. B. Rai, Chairperson, ERPC & Principal Chief Engineer-cum-Secretary, Energy & Power Department, Govt. of Sikkim,** welcomed all the distinguished participants in 42nd ERPC Meeting including the special guests from Bhutan. He thanked PTC for making excellent arrangement for the meeting and extending warm hospitality to all the participants.

He highlighted the following points in his address:

- Scheduling of 4X180 MW Mangdechu HEP have already commenced with effect from 01.09.2019. Odisha, West Bengal and Bihar of Eastern Region are the major beneficiaries of Eastern Region.
- Reconducting work of 400 kV Rangpo – Binaguri D/C line had been started with effect from 01.11.2019. With the completion of the work, there would be reliable evacuation of Hydro Power from Sikkim. He requested Powergrid to ensure timely completion of reconductoring works.
- As per the direction issued by CERC, all the ISGS Stations with installed capacity of 200 MW & above and all the Hydro Station having capacity exceeding 25 MW excluding the run of the river Hydro Projects are required to implement AGC by 28.02.2020. In the Eastern Region, AGC has already been successfully implemented in Barh Unit III & IV of NTPC as Pilot Project. He requested the other ISGS Stations in Eastern Region to adhere the time schedule of implementation.
- From 1st April, 2020 the whole year has to be segregated into high demand season with duration of 3 months and low demand season of 9 months with corresponding segregation

of capacity charges. Further, the Capacity Charges for peak hours will be different from that of off peak hours. Accordingly, ERLDC has carried out an exercise for identification of high demand season. It has now been decided that July, August and September would be considered as high demand season for 2020 – 21. Meticulous generation planning by ISGSs and load generation balance by utility constituents are required.

- Long outage of important Transmission lines like 400 kV Kisanganj – Patna D/C line, 400 kV Purnea – Biharshariff D/C line, 400 kV Barh – Motihari D/C line, 400 kV Barh – Gorakhpur D/C line are a matter of great concern. With this outage, the Regional Grid is compelled to run with reduced security and redundancy. He requested the concerned Transmission Licensees to expeditiously complete the restoration works.

**Shri J. Bandyopadhyay, Member Secretary, ERPC** welcomed Shri. A. B. Rai, Chairperson, ERPC & Principal Chief Engineer-cum-Secretary, Energy & Power Department, Govt. of Sikkim, and other members of ERPC and TCC. He also welcomed the other participants in the meeting including the special guests from Bhutan. He expressed his sincere thanks to PTC for hosting the 42nd TCC and ERPC meeting and making excellent arrangement for the participants.

He then briefed the members regarding the deliberation in the TCC meeting on the previous day including the important decisions taken therein and the issues referred to ERPC for decision.

## ITEM NO.1: CONFIRMATION OF THE MINUTES OF 41st ERPC MEETING

The minutes of the 41st ERPC meeting held on 27.08.2019 in Kochi were issued and uploaded on ERPC website (www.erpc.gov.in) vide ref. no.ERPC/TCC&Committee/14/2019/5601-67dated 03.09.2019.

ERPC Secretariat has received a request for amendment against the item no. 3.2 of ERPC minutes. The original minutes as well as amendment sought are as follows:

Original Recording

*V. NLDC India shall take up with CERC for revising the existing methodology based on the final draft methodology as decided above.*

Amendment Requested

*V. NLDC representative intimated that PTC had filed a petition at CERC on the applicability of the settlement mechanism for Mangdechu generating station. Further deliberation may be taken up subject to the outcome of the petition and final direction by Hon'ble Commission.*

Members may deliberate and confirm the minutes of 41st ERPC meeting.

**Deliberation in the ERPC Meeting**

*After deliberation, ERPC accepted the amendment sort by NLDC. Thereafter ERPC accepted the minutes of the 41st ERPC Meeting issued by ERPC Secretariat with the above amendment.*

## ITEM NO.2: REVIEW OF PERFORMANCE OF THE EASTERN REGIOAL GRID

ERLDC would give a brief presentation on the performance of the grid during August'19 to November'19 and highlight the issues and challenges being faced in the real time operation of the Eastern Regional grid.

***Deliberation in the ERPC Meeting***

*Details of the performance of the Eastern Regional Grid are given in* ***Annexure – II***.

## ITEM NO.3: ISSUES REFERRED TO ERPC BY TCC IN ITS 42nd MEETING HELD YESTERDAY

The issues referred to ERPC by the TCC are placed below:

| | |
|---|---|
| **ITEM NO. 3.1:** | **Establishment of State-of-the-Art Unified Centralized Network Management System U-NMS for ISTS and State Utility Communication Network in Eastern Region** |

CERC notified Communication Regulation which envisages Centralized Supervision System for ISTS Communication.

As per the regulation clause no 7.2 (vii):

*"CTU shall be the Nodal Agency for supervision of communication system in respect of inter-State communication system and will implement centralized supervision for quick fault detection and restoration."*

The issue was discussed in 24th SCADA O&M Meeting held at ERLDC on 14th August 2019, wherein Member Secretary, ERPC informed that a Committee is required to be formed for the assessment of technical requirements to facilitate monitoring of ISTS communication network in line with CERC regulation.

Accordingly, a Committee was formed and the Committee met on 24th October 2019 at ERLDC, wherein POWERGRID made a detailed presentation on Unified Network Management System (U-NMS) Project to be implemented for managing Project for ISTS & State utilities communication network at State, Regional &National level.

Members discussed the technical aspects of U-NMS proposal and generally found it is feasible technically for the U-NMS proposal. All Constituents have given their consent for implementation of U-NMS Project for Central Sector as well as for the State Sector/Constituents.

POWERGRID informed that the estimated cost for Eastern Region ISTS and state network U-NMS is **Rs. 99.93 Crs excluding AMC cost which is estimated as Rs. 2.6 Crs for 6 years after Warrantee period.** U-NMS Project implementation Schedule is considered as 24 months. Investment made by POWERGRID is proposed to be recovered through tariff as notified by CERC. Also it has been deliberated and agreed upon that AMC for U-NMS shall be carried out by POWERGRID itself for Central as well as State sector.

This issue was further deliberated in the 2nd TeST meeting held on 26.11.2019 at ERPC Kolkata.

*In the meeting it was pointed out by Member Secretary, ERPC that U-NMS would help in computing the communication availability. The procedure of communication availability was suggested in the draft CERC (Terms and Conditions of Tariff), 2019 but the same was not incorporated in the final tariff regulation, 2019.*

*All ER Constituents informed that as the separate availability certification of communication system has not been notified by CERC, so this much of investment needed further scrutiny.*

*Powergrid informed that for better system visibility, redundant path identification and fault finding for whole communication network (either inter-regional or intra-state) the centralized U-NMS would certainly help and improve the availability of communication network. POWERGRID also mentioned visibility of all ISTS & State Utility Communication Nodes in single NMS would be possible through central U-NMS. Further, Powergrid informed that a number of regions have already accorded approval for implementation of the project.*

*The issue was also discussed in 41st Commercial Sub Committee Meeting held on 27th November 2019. During deliberation, it emerged that the project was initially envisaged based on the guidelines of CERC in respect of certification of Communication system availability by RPCs. The idea was floated by CERC during the draft stage of Tariff Regulations 2019-2024. However, in the final Tariff Regulations 2019-24, this idea was dropped by the Commission due to lack of clarity.*

*Powergrid representative informed that based on the technical requirement of the system the U-NMS project is necessary for monitoring of communication network at State, Regional & National level.*

*POWERGRID was advised to submit the details of the project to ERPC secretariat within a week along with relevant CERC regulations in respect of this project. Further, POWERGRID was asked to also submit revised Cost estimate of the project by considering the State NMS project along with breakup of each component, recovery mechanism and apportionment of the cost among constituents etc.*

*Upon discussion it was also found that the U-NMS project is proposed to be implemented in pan-India basis and the recovery of the cost of the project shall be on all India basis.*

*POWERGRID informed that the project has already been approved in WR, NR & NER regions.*

*Further, POWERGRID was advised to give a detailed presentation on the same in forthcoming TCC meeting.*

*Matter was referred to upcoming TCC/ERPC for further concurrence.*

PGCIL may give a presentation. Members may discuss.

## Deliberation in the TCC Meeting

*After detailed deliberation TCC recommended to ERPC to give in principle approval for go-ahead to Powergrid to undertake the U-NMS project for Eastern region subject to the following:*

1. *PGCIL shall hold separate discussion with each state of ER to understand the NMS system in the respective states if any already existing within the state and to assess the integration requirement including the cost thereof for each state.*
2. *The details are to be placed by PGCIL in the TeST meeting scheduled to be held in January 2020.*
3. *After finalization of the scheme the revised cost shall be placed by PGCIL in the next TCC meeting.*

ERPC may approve.

### Deliberation in the ERPC Meeting

*As recommended by TCC, ERPC accorded in principle approval for go ahead to Powergrid to undertake the UNMS Projects for the Eastern Region subject to the conditions laid down by TCC.*

| **ITEM NO. 3.2:** | **Strengthening of OPGW Network within the ER-Grid and connectivity with other regions** |
|---|---|

In 23rd SCADA O/M meeting held on 06.03.2019, ERLDC requested ERPC Secretariat to form a committee which could ascertain the requirement of OPGW along with communication equipment after considering the route diversity to bring reliability in Power System operation as per requirement.

Accordingly, a Committee was formed. The Committee met on 14.08.2019 and 24.10.2019, wherein the members discussed about the requirement of additional Inter-regional and Intra-regional OPGW links for strengthening of Eastern Regional OPGW network.

Followings were found to be the list of additional OPGW link, which envisaged by the Committee for implementation along with communication equipment and DCPS:-

| Sl No | Corridor | Selected lines for laying OPGW | Length (km) |
|---|---|---|---|
| 1 | ER- NR (ISTS) | 765 kV S/C Gaya-Varanasi Line –l | 265 |
| 2 | | 400 kV D/C Patna – Balia Line –I | 195 |
| 3 | ER – WR | 765 KV S/C Ranchi – Dharamjaygarh Line-1 | 305 |

| | | | |
|---|---|---|---|
| 4 | (ISTS) | 765 KV S/C Jharsugada – Dharamjgarh Line-1 | 149 |
| 5 | ER-SR (ISTS) | 400 kV D/C Jeypore – Gazuwaka | 221 |
| 6 | ISTS network | 400 kV D/c Nabinagar (BRBCL) Generating Station – Sasaram | 82 |
| 7 | | 400 kV Farakka –Purnea S/C | 160 |
| 8 | | 400 kV Farakka-Sagardighi-Subhasgram S/C | 301 |
| 9 | | 400kV Maithan (PG) – Durgapur (WB) D/C | 128 |
| 10 | | 400KV Durgapur (PG) – Sagardighi (WB) S/C | 72 |
| 11 | DVC network | 220 KV KTPS – Giridih( Line # 251 , 252 ) D/C | 101 |
| 12 | | 132 KV Jamuria – Ramkanali( Line # 90) S/C | 53 |
| 13 | | 132 KV Ramkanali – CTPS ( Line # 60) S/C | 70 |
| 14 | | 132 KV Purulia – Jamshedpur ( Line # 39,40) D/C | 87 |
| 15 | | 132 KV CTPS – Gola ( Line # 6,7) D/C | 67 |
| 16 | | Howrah (DVC) – Howrah(WB) D/C | 1 |
| 17 | JUSNL network | 220 kV Daltonganj (JUSNL) – Latehar (JUSNL) LILOed at Daltanganj (PG) D/C | 90 |
| 18 | | 220 kV Jodda (OPTCL)- Ramchandrapur (JH) S/C | 130 |
| 19 | | 220 kV Chandil (JH)- Ranchi (PG) (up to LILO point) D/C | 90 |

All constituents agreed for implementation of the above-mentioned OPGW links in Central Sector (Sl. 1 to 10) by POWERGRID.
DVC also requested POWERGRID to take up the implementation of OPGW links of DVC Sector (Sl. 11 to 16).
JUSNL also requested POWERGRID to take up the implementation of OPGW links of JUSNL Sector (Sl. 17 to 19).

The detailed report is available at ERPC website in Miscellaneous/Reports section.

*In 2nd TeST Meeting held on 26.11.2019, ERPC Secretariat pointed out that in ER-WR corridor, both OPGW links i.e. 765 KV S/C Ranchi – Dharamjaygarh Line-1 and 765 KV S/C Jharsugada – Dharamjgarh Line-1 will terminate at Dharamjaygarh S/s so this would not form the redundant communication path through ER-WR corridor. Hence, it was suggested to have OPGW on 765 KV S/C Jharsugada – Dharamjgarh Line-1 (length - 149 km).*

*Members requested POWERGRID to explore for alternate path or the other possibility to include in future projects.*

*POWERGRID agreed for the same and informed that they will suggest an alternative path for ER-WR connectivity.*

*ERPC Secretariat asked POWERGRID about the tentative cost of the project, the methodology to recover it and how it will be apportioned among the constituents.*

Thereafter, Powergrid vide letter dated 3rd December 2019 submitted that total cost estimate for implementation of the project would be Rupees 83 Cr. (Copy of the letter is enclosed at **Annexure-B4**).

Powergrid may apprise. TCC may discuss.

## Deliberation in the TCC Meeting

*Powergrid was advised to re-ascertain the length of the individual transmission lines again.*

*TCC recommended to ERPC to approve the project related to strengthening of OPGW network within ER Grid and connectivity with the other regions at an estimated cost of Rs 83 crores as per the details given in the Annexure B4.*

ERPC may approve.

**Deliberation in the ERPC Meeting**

*ERPC accorded approval for the project related to strengthening of OPGW network within ER Grid and connectivity with the other regions at an estimated cost of 83 Crores. The cost shall be recovered through tariff.*

| | |
|---|---|
| **ITEM NO. 3.3:** | **Compensation of MPL station on account of SCED** |

Maithon Power Limited (MPL) has been included in the RRAS & SCED Scheme w.e.f 12th June 2019. Majority of time MPL is getting SCED down schedule only. Due to part load operation of the station, the Compensation has been given to the station due to degradation of heat rate of the station.

In view of the above, ERPC has published the compensation statement for the months June 2019 & July 2019 vide No. ERPC/COM/REA/2019/6885-6897 dated 10.10.2019, where in it was observed that, in the calculation of compensation the reduction of load of MPL due to part load operation on account of SCED has not been considered for these months.

*The issue was discussed in 41st CCM, wherein MPL representative explained the issue of not getting full compensation for the station after participation in SCED w.e.f. 12th June, 2019. He further added that the compensation on account of SCED was given but the compensation due to under requisition of beneficiaries was not considered.*

*It was deliberated in the meeting that the share allocation of MPL station is based on fixed LTA quantum (in MW) to beneficiaries unlike other central sector generating stations which are in percentage basis based on the allocation done by Ministry of Power, Govt. of India. Hence, as per prevailing regulations the compensation cannot be calculated on percentage basis for the stations whose share allocation is in MW.*

*Further, the compensation for central generating station would be given if the average unit loading is less than 85% either due to under requisition of beneficiaries or due to net SCED down schedule.*

*MPL was advised to sort out the issue with the beneficiaries. In case the issue remains unresolved, MPL is at liberty to file a petition before CERC to get clarification in the methodology of compensation for IPP stations.*

*However, after discussion it was decided to refer the issue to upcoming TCC for further deliberation.*

TCC may discuss.

## Deliberation in the TCC Meeting

*MPL submitted that MPL for all practical purpose should be treated at par with CGS and therefore full compensation should be allowed to MPL instead of part compensation due to SCED only which is given at present.*

*After detailed deliberation no consensus could be arrived at on this issue. TCC suggested that MPL may file a petition before CERC for clarification regarding the issue.*

*The issue has been referred to ERPC for further deliberation.*

ERPC may guide.

### Deliberation in the ERPC Meeting

*ERPC advised MPL to approach CERC for necessary clarification.*

| | |
|---|---|
| **ITEM NO. 3.4:** | **Procurement of new SEMs** |

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

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

In 145th OCC, PGCIL informed that 300 meters of 2nd lot has been supplied. Time drifted meters are being replaced by Genus meters phase wise.

In 38th CCM, PGCIL informed that remaining 364 nos. of meters has been delivered.

In 40th CCM, POWERGRID requested ERLDC to provide the list of required anticipated new connections and they will place the cost estimate accordingly.

The list of future requirements of meter details regarding upcoming Generation project/ Sub-station may be furnished to ERLDC.

*In 41st CCM, PGCIL provided the list of upcoming project details for one year. Based on the data provided by PGCIL (ER-1, ER-2 and Odisha Project) total 202 number of SEMs are required.*

*PGCIL also confirmed that present stock is approximately 210 numbers. The details are attached in **Annexure-B12.***

*The Matter was referred to forthcoming TCC/ERPC meeting.*

TCC may discuss.

## Deliberation in the TCC Meeting

*After detailed deliberation, TCC decided the following:*

- *Powergrid shall procure 300 meters in first lot.*
- *Further requirement of new SEMs shall be reviewed periodically in lower fora of ERPC.*

ERPC may approve.

### Deliberation in the ERPC Meeting

*As recommended by TCC, ERPC approved the procurement of 300 Meters in the first lot. Further requirement of the new SEM shall be reviewed periodically in the lower fora of ERPC.*

| | |
|---|---|
| **ITEM NO. 3.5:** | **Testing and Calibration of Special type Energy Meter** |

Availability Based Tariff, Interface Meters (Special Energy Meters) have been installed by CTU at the points of interconnection with Inter-State Transmission System (ISTS) for energy accounting and billing. As per Central Electricity Authority (CEA) notification no. 502/70/CEA/DP & D dated 17.03.2006, all interface meters shall have to be tested at least once in five years using NABL accredited mobile laboratory or at any accredited laboratory. In this regard Clause 18(1) (b) of CEA (Installation and Operation of Meters) Regulations, 2006 state that:

Quote……

*All interface meters shall be tested at least once in five years. These meters shall also be tested whenever the energy and other quantities recorded by the meter are abnormal or inconsistent with electrically adjacent meters. Whenever there is unreasonable difference between the quantity recorded by interface meter and the corresponding value monitored at the billing center via communication network, the communication system and terminal equipment shall be tested and rectified. The meters may be tested using NABL accredited mobile laboratory or at any accredited laboratory and recalibrated if required at manufacturer's works.*

……Unquote

Presently, POWERGRID have installed about 1310 nos. of Special Energy meters of 0.2 class accuracy in 765/400/220/132kV substations at about 189nos of locations in Eastern Region covering states of Orissa, West Bengal, Sikkim, Bihar and Jharkhand.

Out of 1310 no of meters installed in ER, around 768 meters (all L&T make) at 157 locations are more than five years old. Moreover, Testing and calibration of around 307 Interface meters in ER was last carried out in year 2013 i.e. more than 6 years ago. A list of 140 no of meters which are severely drifted in time is already communicated to POWERGRID for replacement and accordingly, replacement work has started. In view of the above, remaining 628 meters may be tested and calibrated as per the provision of aforesaid regulation. Further Time correction of meters of drifted meters may also be done (under testing and calibration).

In 162nd OCC, Powergrid submitted that out of 768 L&T meters, 140 would be removed from service by November 2019. Testing will be done for the remaining meters and the detailed plan for the same including cost of testing would be submitted in the upcoming OCC. Powergrid clarified that in case of any abnormal results found during the testing, those L&T meters would be replaced by Genus meters and the defective L&T meters would be sent for calibration.

*In 163rd OCC Meeting held on 15.11.19, POWERGRID informed that they received the offer of 68 Lakhs (approx.) for testing and calibration of said 628 L&T meters.*

OCC referred the issue to Commercial Sub-Committee for concurrence.

*In 41st CCM, POWERGRID representative informed that the testing and calibration of 628 L&T meters is required as per the provisions of existing metering regulation since they were tested and calibrated a long back. Further, if any, time correction is necessary that would also be done.*

*However, ERPC and ERLDC opined that CEA is coming up with new metering regulation along with technical specifications (5 min & 15 min provision) of meters for future requirement of grid. Since the testing and calibration of the proposed meters has cost implication, it was agreed that the same may kept in abeyance till issuance of further guidelines or regulations by competent authority.*

*The Matter was referred to forthcoming TCC/ERPC meeting.*

TCC may discuss.

## Deliberation in the TCC Meeting

*After deliberation, TCC decided the followings:*

- *50 % of total old L&T Meters shall be tested and calibrated.*
- *ERLDC shall prepare the priority list for SEMs to be tested which are old and highly time drifted.*
- *Powergrid shall carry out testing and calibration for the old L&T meters as per the list.*

ERPC may concur.

### Deliberation in the ERPC Meeting

*The decision of TCC was accepted by ERPC.*

| ITEM NO. 3.6: | Issue of trial operation/completion certificate by ERLDC for Alipurduar-Punasangchu OPGW link |
|---|---|

The OPGW work in Alipuduar-Punasangchu link (64 Km) alogwith communication equipment was completed for India Portion on 28.03.2019. POWERGRID requested ERLDC to issue Trial Operation Certificate/Completion certificate for India Portion of Alipurduar-Punasangchu link. ERLDC vide their letter dtd 24.09.2019 intimated that the certificate can be issued after transfer of data & voice through this link. But the work is completed by POWERGRID for Indian Portion (with transmission line) and the link could not be established due to pending work in Bhutan side. Accordingly, it is requested to issue the trail operation/completion certificate by ERLDC for Alipurduar-Punasangchu link (India Portion).

*In 163rd OCC, it was opined that the issue is genuine and the trial operation certificate may be issued in this case.*

*ERLDC informed that since it is an international connectivity the trial operation certificate shall be given by NLDC. However, ERLDC agreed to pursue with NLDC.*

*In 2nd TeST meeting held on 26.11.2019 at ERPC, Kolkata, NLDC informed that purpose of laying OPGW on Alipuduar-Punasangchu link (64 Km) along with communication equipment (India Portion) is not fulfilled until OPGW link up to Punasangchu, Bhutan is ready. So, as per CERC regulation, there is no provision to give trial operation certificate considering the present scenario.*

*Powergrid informed that they should receive the OPGW certificate in the same way as received for transmission line.*

*The issue was referred to 42ndTCC/ERPC meeting for further discussion.*

TCC may discuss.

## Deliberation in the TCC Meeting

*The issue was discussed in details in the TCC meeting and no consensus was arrived at.*

*The issue has been referred to ERPC.*

ERPC may guide.

### Deliberation in the ERPC Meeting

*ERPC advised Powergrid to approach CERC for necessary clarification.*

| ITEM NO. 3.7: | Short closing of URTDSM Project installed in Eastern Region |
|---|---|

Under URTDSM project, 12 nos. PMUs could not be commissioned due to various reason as mentioned below:

a. Bankruptcy/admin. issue : 2 PMUs ( IPPs - Monnet &IndBharat)
b. Non-availability of communication link : 8 PMUs ( GMR IPP & JITPL IPP)
: 2 PMUs at Tenughat
c. Substation not ready : 3 PMUs at Patratu

In 1st TeST meeting held on 24.10.2019, the issue was discussed and POWERGRID requested for short-closing of the pending erection/commissioning activities of PMU in above sites.

As there is no change in status even after long period of waiting, pending completion of above, POWERGRID may be given go-ahead for submitting tariff petition based on the supply and works carried out in actual for the above-mentioned 12 nos. PMUs at 06 nos. sites.

In 163rdOCC meeting, OCC advised to keep the PMUs as spare wherever it is accessible.

This issue was further deliberated in the 2ndTeST meeting held on 26.11.209 at ERPC, Kolkata.

*Powergrid requested for short-closing of the pending erection/commissioning activities of PMUs at Monnet & Ind Bharat due to site issue. Powergrid informed that GE had completed the necessary connections at GMR, JITPL &Tenughat stations but due to non-availability of the OPGW communication links, PMU data from these stations were yet to be made available. POWERGRID further requested to use 3 PMUs at Patratu station as spare as per the decision of 163rd OCC meeting.*

*ERPC Secretariat suggested that considering the site issue at Monnet & Ind Bharat, short closing might be allowed but Powergrid needed to complete the PMU work including its data transfer from GMR, JITPL & Tenughat.*

*It was decided to take the above matter to the next TCC/ERPC meeting for further discussion.*

TCC may approve.

## Deliberation in the TCC Meeting

*Powergrid informed that integration of PMUs at Tenughat would be completed by December 2019 and the same for GMR and JITPL would be completed by June 2020.*

*After detailed deliberation, TCC decided the followings:*

- *Short closing of URTDSM project shall be allowed only after integration of PMUs including its data transfer at GMR, JITPL & Tenughat.*
- *Since Patratu substation is not yet ready, 3 nos. of PMUs of Patratu station shall be kept as spare.*
- *2 nos. of PMUs meant for Monnet and Ind Bharat can't be commissioned due to bankruptcy issue.*

*Referred to ERPC for concurrence.*

ERPC may concur.

**Deliberation in the ERPC Meeting**

*The decision of TCC was accepted by ERPC.*

| | |
|---|---|
| **ITEM NO. 3.8:** | **'Upgradation of SCADA/RTUs/SAS in the Central sector stations and strengthening of OPGW network in Eastern Region' Project** |

In 39th ERPC Meeting, it was decided that,

i) ERPC approved the proposal of Power Grid for replacement of the old RTUs in the Eastern Region for reporting of RTU / SAS to backup control centres at an estimated cost of Rs. 88.57 Crore with an implementation time of 36 months.
ii) Power Grid shall place a proposal before PSDF Committee for financing the above project from PSDF.
iii) In case of non- availability of required funding from PSDF, the project shall be implemented by Power Grid and the cost shall be recovered by Power Grid through tariff.

Accordingly, POWERGRID applied for financing of the above project through PSDF vide letter no C/LD&C/PSDF/19-20/1 dated 22.07.2019. Subsequently, NLDC (nodal agency for PSDF) has intimated vide letter ref. NLDC-PSDF/TESG-51st meeting/2019-20/143 dated 18.09.2019 regarding non-availability of PSDF Fund for the above project. Hence, **it may be kindly recorded** that POWERGRID has already initiated the Placement of LOA and execution of the project through tariff basis.

TCC may note.

## Deliberation in the TCC Meeting

*TCC noted.*

**Deliberation in the ERPC Meeting**

*ERPC noted.*

| | |
|---|---|
| **ITEM NO. 3.9:** | **Preponement of Commissioning of following assets of PGCIL** |

1. **Preponement of Commissioning of following assets under ERSS XX & ERSS XVIII scheme in ER-I**

It has been planned for installation of following assets under ERSS XX & ERSS XVIII scheme before schedule date of completion (SCOD):

| Sl No | Name of Assets | Scheduled Completion | Anticipated DOCO |
|---|---|---|---|
| (i) | 400/220 kV, 315 MVA ICT at Banka under ERSS XX | 01/05/2020 | 28/12/2019 |
| (ii) | 400/220 kV, 315 MVA ICT at Lakhisarai under ERSS XX | 01/05/2020 | 25/12/2019 |
| (iii) | 765kV, 80 MVAR Spare Reactor at Ranchi under ERSS XX | 01/05/2020 | 31/03/2020 |
| (iv) | Re-conductring of 220 kV New Purnea- Purnea line under ERSS XX | 01/05/2020 | 25/12/2019 |
| (v) | Conversion of 63 MVAR fixed line reactor at New Purnea end of one Ckt of New Purnea – Kishanganj 400kV D/C line to Switchable line raector | 01/05/2020 | 25/12/2019 |
| (vi) | 2 nos of 765 kV Line bays along-with 240 MVAR switchable line reactors at Ranchi for 765kV Ranchi-Medinipur line (under TBCB) under ERSS XVIII | 01/08/2020 | 31/03/2020 |

Ahead of schedule commissioning of the above assets may kindly be agreed considering the requirement of grid.

*In 163rd OCC, members agreed to consider preponement of the assets from scheduled completion date to actual commissioning date for Sl no (i) to (v) considering the requirement of Grid.*

*OCC also agreed to consider preponement of the assets from scheduled completion date to actual commissioning date the line for Sl no (vi) considering the requirement of Grid.*

*In 41st CCM, Members agreed to consider preponement of the assets from scheduled completion date to actual commissioning date in view of Grid requirement.*

*Matter was referred to forthcoming TCC meeting for further Concurrence.*

TCC may approve.

## Deliberation in the TCC Meeting

*TCC approved the preponement of the assets from scheduled completion date to actual commissioning date of the elements in Sl no (i) to (v) considering the requirement of Grid.*

*TCC opined that further discussion is needed in lower fora of ERPC for the elements in sl no. (vi).*

*TCC referred to ERPC for further concurrence.*

ERPC may approve.

**Deliberation in the ERPC Meeting**

*The decision of TCC was accepted by ERPC.*

**2. Early commissioning of 125MVAR Bus Reactor at Subhasgram and 500MVA ICT-III at Maithon**

Under ERSS-XX package, both 500MVA ICT-III at Maithon and 125MVAR Bus Reactor at Subhasgram was expected to be commissioned in April, 2020. The material has already been received at both the substations. Considering the requirement of the grid it is prudent to commission the reactor at Subhasgram S/s which will definitely be beneficial during ensuing winter. Similarly, entire commissioning activity of the supplied 500MVA ICT-III at Maithon can be finished before summer season, if shutdown is provided.

Considering the present load scenario in Subhasgram and Maithon, it is proposed that early commissioning of the said 125MVAR Bus Reactor at Subhasgram S/S and 500MVA ICT-III at Maithon may please be agreed.

*In 162nd OCC, Members agreed to the proposal of early commissioning of 125MVAR Bus Reactor at Subhasgram and 500MVA ICT-III at Maithon for the benefit of Eastern Region Grid.*

TCC may approve.

## Deliberation in the TCC Meeting

*TCC approved early commissioning of 125MVAR Bus Reactor at Subhasgram and 500MVA ICT-III at Maithon for the benefit of Eastern Region Grid.*

*TCC referred to ERPC for further concurrence.*

ERPC may approve.

***Deliberation in the ERPC Meeting***

*ERPC approved.*

**3. Preponement of commissioning of 160 MVA 220/132 kV ICT-IV of Malda S/S in place of 50 MVA ICT-IV.**

Under ERSS-XX package, existing 50 MVA ICT-IV of Malda SS is to be replaced by 160 MVA ICT. As per Investment Approval, the commissioning schedule of the said ICT was February-2020. In 41st ERPC, the preponement was approved.

*The said ICT was charged and declared under DOCO w.e.f. 01.10.19.*

TCC may note.

## Deliberation in the TCC Meeting

*TCC noted.*

ERPC may note.

***Deliberation in the ERPC Meeting***

*ERPC noted.*

| | |
|---|---|
| **ITEM NO. 3.10:** | **Schemes approved in the 2nd meeting of Standing Committee on Transmission of Eastern Region held on 05-07-2019:** |

**1. The following schemes have been approved in the 2nd meeting of Standing Committee on Transmission of Eastern Region held on 05-07-2019:**

**A. Modification in earlier approved schemes**

**1. Termination of 400kV lines at Jeerat (WBSETCL) substation under the ERSS-XV and ERSS-XVIII schemes**

1.1 Following 400kV lines are existing / under construction at 400/220kV substation of Jeerat (WBSETCL):

**Existing:**

(i) Jeerat (WBSETCL) – Sagardighi 400kV S/c line of POWERGRID

(ii) Jeerat (WBSETCL) – Rajarhat/Subhashgram 400kV S/c line of POWERGRID

(iii) Jeerat (WBSETCL) – Barkeshwar (WBSETCL) 400kV S/c line of WBSETCL

(iv) Jeerat (WBSETCL) – Kolaghat (WBSETCL) 400kV S/c line of WBSETCL

**Under Construction:**

(v) LILO of Sagardighi – Subhashgram 400kV S/c line at Jeerat (WBSETCL) as a part of ERSS-XV by POWERGRID

(vi) Jeerat (New) – Jeerat (WBSETCL) 400kV D/c line (Quad) as a part of ERSS-XVIII being implemented under TBCB by POWERGRID Medinipur-Jeerat Transmission Ltd.

1.2 There was RoW problem for termination of new 400kV lines being implemented under ERSS-XV and ERSS-XVIII at Jeerat (WBSETCL) S/s. Accordingly, in the 19th meeting of SCPSPER, following was decided to resolve the issue:

(i) Dismantling of dead end towers and termination of existing lines mentioned at 1.1 (i) to (iv) through GIS duct, at the existing 400kV Jeerat AIS S/s (WBSETCL) as ISTS.

(ii) The new lines mentioned at 1.1 (v) and (vi) can be directly terminated on separate double circuit towers at normal height (around 45 meters) to new GIS extension area.

(iii) Further, it was also acknowledged that implementation of LILO of Sagardighi-Subhasgram 400kV S/c line at Jeerat along with associated line bays shall get delayed due to addition of above mentioned GIS duct arrangement.

1.3 Since the work to be carried out under ISTS may not match the timeline of ERSS-XV & ERSS-XVIII schemes, it was requested to extend the completion of ERSS-XV & ERSS-XVIII schemes in the 1st meeting of ERSCT. Further, in the 1st ERSCT it was also decided that "after finalization of implementing agency for the work, a separate meeting in CEA with CTU, POWERGRID, WBSETCL and implementing agency will be held to discuss the extension of completion schedule of ERSS-XV & ERSS-XVIII schemes. Decision of the meeting will be put up before ERSCT for ratification."

1.4 In the 2nd meeting of ECT held on 06-08-2018, POWERGRID has been entrusted with the works mentioned above at 1.2 (i) through RTM.

1.5 For dismantling and termination of various lines of POWERGRID and WBSETCL through GIS duct, agreement was signed by POWERGRID with WBSETCL on 07-11-2017, i.e. WBSETCL is implementing the said works on POWERGRID's behalf at its substation. The work has been awarded to JV of M/s Techno & M/s ABB in Nov'18 after approval of mode of implementation in the 2nd ECT meeting. The expected commissioning schedule of the GIS works is 15 months (i.e. Feb 2020) from award.

**Members may approve revised completion schedule of ERSS-XV/XVIII scheme as Feb 2020.**

## 2. Conversion of 50MVAr bus reactor at Farakka generation switchyard to switchable line reactor under ERSS-15

2.1 In the 19th meeting of Standing Committee on Power System Planning of Eastern Region held on 01-09-2017 it was informed that one spare future bay has been selected for termination of one circuit of Farakka – Baharampur D/c line at 400kV bus at Farakka generation switchyard, however, due to non-availability of adjacent bay for termination of the other circuit it is proposed to terminate the second circuit in the exiting 50MVAR bus reactor bay along with conversion of this reactor to switchable line reactor. This arrangement would result in connection of

50MVAR switchable line reactor in one circuit of Farakka – Baharampur 400kV D/c line at Farakka end to be utilised as bus reactor.

2.2 In the meeting, members agreed for conversion of 50MVAR (3x16.67) bus reactor at Farakka to switchable line reactor to be installed in one circuit of Farakka – Baharampur 400kV D/c line as ISTS. Subsequently, in the 2nd meeting of ECT it has been decided that the said works would be implemented by POWERGRID under RTM. **Accordingly, as per ECT approval the scheme has already been implemented by POWERGRID under the ERSS-XV scheme.**

***Members may please note.***

## 3. Extension of completion schedule for installation of ICT-2 at Farakka (NTPC) under ERSS-XII

3.1 In 19th meeting of SCPSPER held on 01.09.2017, constraint in transportation of ICT-II at Farakka (NTPC) under ERSS-XII were discussed and it was recorded that:

*"In case of transportation constraint at Farakka Switch Yard, the ICT may be transported through Farakka Feeder Cannel waterways at additional cost under ERSS-XII scheme".*

3.2 Subsequently in first meeting of ERSCT held on 16.07.2018 following was decided:

*"After deliberation, following modification in ERSS-XII was agreed with extension in completion schedule by 18 months from the schedule COD".*
*"… New ICT which is being procured to replace the burnt ICT, Patna to be diverted to Farakka for installation of ICT-II".*

3.3 Based on decision on ERSCT meeting held on 26.07.2018, POWERGRID took procurement action for ICT and NOA for supplying new ICT for Farakka was placed in April 2019 with completion schedule of 12 months i.e. up to April 2020.

3.4 However, considering shutdown constraint at NTPC and commission activities of bays & ICT, completion schedule of Installation of ICT-2 at Farakka (NTPC) under ERSS-XII may need to be extended till June 2020.

***Members may approve the extension of completion schedule of installation of ICT-2 (400/220kV, 315MVA) at Farakka (NTPC) under ERSS-XII till June 2020.***

## 4. Modification in transmission system associated with North Karanpura (3x660MW) generation project of NTPC

4.1 Director (PSPA-II), CEA informed that the evacuation system for North Karanpura (3x660MW) generation project (of NTPC) and ERSS-XIX schemes

together was to be implemented by M/s NKTL (subsidiary of Adani) under TBCB route with following scope of works:

(a) North Karanpura – Gaya 400kV D/c (Quad) line

(b) North Karanpura – Chandwa 400kV D/c (Quad) line

(c) Establishment of 400/220 kV, 2x500 MVA sub-station at Dhanbad

(d) LILO of both circuits of Ranchi-MaithonRB 400 kV D/c line at Dhanbad

4.2 However, the work was not progressed. CERC, in its order dated 20.03.2019 in Petition no. 194/MP/2017 has directed CEA to decide revised Scheduled Commercial Date of Operation (SCoD) for execution of the transmission system in consultation with NTPC and the Petitioner.

4.3 Accordingly, a meeting was held at CEA on 23-04-2019, wherein the status of transmission system of NKTL was reviewed and following was agreed.

i. Revised scope of the project:
   a. NKSTPP – Common point would be 13 km multi circuit 400kV line (quad moose conductor).
   b. Common point – Chandwa would be 25 km 400kV D/c line (quad moose conductor).
   c. Common point – Gaya would be 98 km 400kV D/c line (quad moose conductor).
   d. New 400/220kV, 2x500MVA Dhanbad Substation.
   e. 1.2 km D/c LILO of Ranchi-Maithon RB 400kV D/c line at Dhanbad.

ii. NKSTPP-Chandwa 400kV D/c line would be completed in 14 months, i.e. by June 2020 and NKSTPP-Gaya 400kV D/c line would be completed in 23 months, i.e. by March 2021. New 400kV Dhanbad S/s with 1.2 km D/c LILO of Ranchi-Maithon 400kV D/c line would be completed in about 18 months, i.e. by October 2020.

iii. Representative of NKTL agreed for the above time lines subject to getting forest clearance for NKSTPP-Chandwa 400kV D/c line within 200 days and for NKSTPP-Gaya 400kV D/c line within 300 days.

***Members may approve the revised scope of works mentioned above at para 4.3, which is to be implemented by M/s NKTL within above mentioned revised Scheduled Commercial Date of Operation (SCoD).***

## 5. Augmentation of transformation capacity at Muzaffarpur (POWERGRID) S/s

5.1 The load demand in Muzaffarpur & adjoining areas is largely fed by Muzaffarpur (PG) with transformation capacity of 1x500+2x315 MVA. During peak hours following loadings are being observed:

5.2

| Sl. No. | Lines | Maximum Loading (MW) |
|---|---|---|
| **1** | Muzaffarpur (PG)-MTPS (D/C) | 420 |
| **2** | Muzaffarpur (PG)-Hazipur (D/C) | 296 |
| **3** | Muazaffarpur (PG)-Dhalkebar (Nepal) (400kV Transmission Line charged at 220kV) | 150 |
| | **Total** | **866** |

5.3 In present scenario itself, Muzaffarpur (PG) is not able to fulfill N-1 criteria and in case of outage of any power transformer, the situation will be critical. Moreover, if the generation at Kanti (MTPS) reduces, the power supply position at Muzaffarpur 220kV level further aggravates under N-1 of ICTs.

5.4 In future, Amnor (Chappra) GSS(220/132/33 KV) will be connected to Muzaffarpur (PG) through 220 KV D/C lines as approved in 18th Standing Committee Meeting. Further Amnor has been proposed to be connected to Digha(new) GSS (220/132/33 KV) at 220 KV level. BSPTCL has also proposed one 220/132/33 KV GSS at Garaul (Dist. Vaishali) under State Plan, approved in the Bihar cabinet, is getting source at 220 KV level with D/C from Muzaffarpur(PG). Both proposed GSSs (Digha and Garaul) are likely to be commissioned in March-2020. In future the loading pattern on 220kV lines is expected to be as follows:-

| Sl. No. | Lines | Maximum Loading (MW) |
|---|---|---|
| **1** | Muzaffarpur (PG)-MTPS (D/C) | 80 |
| **2** | Muzaffarpur (PG)-Hazipur (D/C) | 250 |
| **3** | Muzaffarpur (PG)-Amnor (BGCL) (D/C) | 300 |
| **4** | Muzaffarpur (PG)-Goraul (Proposed) (D/C) | 200 |
| | **Total** | **830** |

5.5 In view of the above, BSPTCL proposed for addition of one new 500MVA transformer at Muzaffarpur (PG) to ensure uninterrupted power to Muzaffarpur and adjoining areas in the event of outage of any transformer.

5.6 A meeting was held on 26.03.2019 at CEA it was suggested that additional one no. of 500MVA ICT may be installed to meet the load under N-1 criteria.

5.7 Space is available for new 400/220kV, 500MVA ICT. The 400kV ICT bay could be implemented as AIS; however, 220kV ICT bay needs to be implemented as GIS along with 220kV cable from ICT to GIS bay.

**Members may approve installation of one additional 400/220kV, 500MVA ICT at Muazaffarpur (PG) was agreed for installation under ISTS. The 400kV ICT bay would be implemented as AIS & 220kV ICT bay would be implemented as GIS along with 220kV cable from ICT to GIS bay.**

**6. Additional 400kV connectivity at 400/220/132kV Saharsa (new) S/s being implemented under ERSS-XXI through TBCB**

6.1 The present connectivity of upcoming 400/220/132 kV Saharsa (New) GSS at 400 kV level is LILO of Patna (PG) - Kishanganj (PG) 400 kV D/C line and this work is being done by POWERGRID under TBCB route.

6.2 Saharsa (New) GSS has to be fed from two reliable sources, whereas one of the feed i.e. Patna (PG) - Saharsa (New) 400 kV D/c line is having river crossing and tower failure may occur during floods. Therefore, to improve the reliability at 400 kV level, it is proposed to provide an additional source by making LILO of Darbhanga (DMTCL) - Kishanganj (PG) 400 kV D/C line at 400 kV Saharsa (New) S/S.

6.3 A meeting was held on 26.03.2018 at CEA, wherein Chief Engineer (PSP&AII), CEA, and representative of CTU stated that Kishanganj (PG) - Saharsa(New) 400 kV D/c line with Quad moose conductor can meet the load of Saharsa (New) S/S , in case of tower failure of Patna (PG) – Saharsa (New) 400kV D/c line. Under worst case scenario, i.e. with only one circuit of Kisanganj (PG) - Saharsa(New) 400 kV line (with quad moose), the load of Saharsa (New) S/S would be met in the present condition. Based on operational experience, the alternatives may be discussed.

6.4 It was opined that N-1 criteria can only be considered while planning, whereas tower failure in river crossing cannot be considered as a general case in the studies. However, representative of BSPTCL insisted that the 2nd 400kV LILO line i.e. LILO of Kishanganj – Darbhanga may be considered at Saharsa to improved power supply reliability, as the Kishanganj – Patna line during the last two monsoon seasons has suffered prolonged outage due to tower collapse at various locations during flood.

**Members may approve additional 400kV connectivity at 400/220/132kV Saharsa (new) through LILO of both circuits of Kishanganj – Darbhanga 400kV D/c (Q) line.**

**7. Scheme for limiting of fault current level at 400kV level at Farakka generation switchyard**

7.1 The three phase fault level at Farakka TPS (NTPC) at 400kV bus is found to be exceeding the designed short time current rating of equipment (i.e. 40kA). In the present time-frame, the fault level is observed to be about 53kA (assuming split is

operational at Maithon, Biharsharif, Durgapur, and Kahalgaon). Moreover, the fault level of Farakka generation switchyard in 2022-23 time-frame is expected to be about 54.5kA.

7.2 The matter was discussed in a meeting held at CEA on 26-03-2019. In the meeting, CTU had proposed for splitting the 400kV Farakka bus using series reactor. With the proposed bus splitting arrangement and a series reactor of 12ohm between the bus sections, it was observed that maximum angular difference between the two sections isabout 4-5 degrees. Representative of NTPC informed that auxiliary power supply for Farakka STPP is designed to derive station and backup power supply for plant auxiliaries from 400kV switchyard through 3 nos. Tie transformers (125MVA, 125MVA and 100MVA). Tie transformer#1 and 2 are fed from 400kV Bus#1 and Tie Transformer#3 is fed from 400kV bus#2. For Farakka STPP stage-1, 2 and 3, there is interconnection between the respective Tie transformers at 33kV, 11/6.6kV and 0.415kV levels. 2x100% / 3x50% redundant feeding configuration is provided at each load centre with two sources fed from different Tie transformers such that there is no loss of plant auxiliaries in case of outage of any one tie transformer. This provision has been kept by design in order to ensure reliability of supply to auxiliaries and avoid loss of generation on outage of Tie Transformer. In case of splitting the 400kV Farakka bus using series reactor arrangement, the phase angle difference between same voltage level buses would be more than 5 degree. Due to this, auxiliary power supply changeover may not take place or heavy circulating currents would flow, which may further trip some of the circuit breakers.

7.3 After system study, NTPC informed that even with 2.5 deg. angle between FSTPP split buses and around 50% loadings of the tie transformer, angular difference at 33kV level is more than 6 deg. which may result in blocking of changeover considering equipment safety. It is also pertinent to highlight here that as per load flow studies with paralleling at 415Volts level, high recirculating currents are observed in the LT system during paralleling which lead to overloading of the transformer and subsequent tripping of the incoming LT transformer. Changeover from one source to second source is not possible under this condition.

7.4 In view of the above, it was decided that alternate solutions to limit fault current at Farakka would be studied.

7.5 Accordingly, in view non feasibility of either bus splitting of installation of series reactor at Farakka generation switchyard, following alternatives involving physically bypassing of 400kV D/c lines outside the generation switchyard have been studied: (a) Bypassing Kahalgaon ckt-1 & ckt-2 and Durgapur D/c (about 250km)

(b) Bypassing Kahalgaon ckt-3 & ckt-4 and Durgapur D/c (about 250km)

(c) Bypassing Kahalgaon ckt-3 & ckt-4 and Sagardighi D/c (about 160km)

| Case | Fault current at Farakka | Fault current at Sagardighi | Fault current at Durgapur |
|---|---|---|---|
| (a) | 44.16kA | | 41.13kA |
| (b) | 41.76kA | | 41.64kA |
| (c) | 43.16kA | 41.85kA | |

7.6 From the above, it may be observed that alternative-(b) is the most suitable alternative as the 3-phase short circuit current reaches the lowest value. Only shortcoming of this alternative is Kahalgaon ckt-3 & ckt-4 lines (95km) are designed to operate till 85°C, whereas Durgapur lines (150km) are designed to operate till 75°C, which would result in underutilisation of Kahalgaon-Farakka section of resultant Kahalgaon-Durgapur line

7.7 Nevertheless, it may be noted from above that with 41.76kA fault level, most of the Circuit Breakers (CB) at Farakka switchyard are expected to experience fault current less than 40kA as the contribution from each of elements is mostly greater than 1.76kA, except contribution from 3x200MW generators, 2x315MVA ICTs and a few transmission line.

**Members may discuss.**

## Deliberation in the TCC Meeting

*It was informed that the projects of the ER have been approved in 2nd ERSCT meeting held on 5th July 2019 in consultation with ER constituents. So TCC recommended ERPC for acceptance of the same.*

*Further, TCC advised the concerned constituents to obtain any further clarification needed from the Standing Committee in its meeting scheduled to be held on 24th December 2019.*

ERPC may concur.

### Deliberation in the ERPC Meeting

*ERPC accorded approval for the projects of the Eastern Region finalised in the 2nd ERSCT Meeting held on 05.07.2019 in consultation with the ER Constituents.*

*As advised by TCC, the concerned constituents may approach the Standing Committee for any further clarification in this regard.*

| ITEM NO. 3.11: | Collection of modelling data from Renewable as well as conventional energy generators |
|---|---|

In 153rd OCC meeting held on 21st January 2019, the constituents were advised to submit the details of renewable power plants of 5 MW and above.

As per CEA latest data, total 1360 MW of RES have been installed in Eastern Region. The breakup of the same is as follows-

| Sl No | State/Utility | InstalledCapacity(MW) |
|---|---|---|
| 1 | Bihar | 341 |
| 2 | Jharkhand | 47 |
| 3 | DVC | Nil |
| 4 | Odisha | 521 |
| 5 | West Bengal | 515 |
| 6 | Sikkim | 52 |

In 158th OCC and 159thOCC meeting held on 27th June 2019 and 19th July 2019 respectively format for sharing of modelling data was shared with all the concerned.

However, even after repeated follow up in each OCC meeting till date data is received only from Odisha for 5 solar power plants with cumulative capacity of 115 MW.

Concerned constituents are requested to share the source wise breakup and dynamic data for 5MW and above power plant as per shared format.

ERLDC may explain.

**Deliberation in the ERPC Meeting**

*ERPC advised all the states to furnish requisite data to ERLDC by 31.12.2019.*

| ITEM NO. 3.12: | Conversion of Line Reactor as Bus reactor with NGR bypass Scheme |
|---|---|

A mail was circulated by ERLDC for collecting the switchability information of the Line reactors and the availability of the required NGR bypass arrangement for converting the line reactor to Bus reactor. It is observed that some of the lines have switchable reactors but NGR by-pass facility is not available due to which reactors cannot be taken into service as bus reactor, in case line is out. In view of upcoming winter season, the bypass arrangement for NGR needs to be commissioned so that switchable line reactors can be kept in service (as bus reactor) even when a line is opened to check the voltage rise.

ERLDC may explain.

**Deliberation in the ERPC Meeting**

*Powergrid agreed to furnish the necessary data and information to ERLDC by 24.12.2019.*

| ITEM NO. 3.13: | Submission of Thermal Loading of Transmission line and associated terminal equipment by ISTS licensee |
|---|---|

Thermal Loading of Transmission line and associated terminal equipment is one of the most vital data which is utilized for Operation Purpose, calculation of ATC/TTC and various other studies. This information has to be submitted by the transmission utilities. However even after regular follow-up in past several OCC meetings, significant delay has been observed in submission. Status of submission of data upto first week of December 2019 is as follows:

| Name of Utility | Whether End Equipment Rating Submitted or Not? |
|---|---|
| PGCIL ERTS-1 and ERTS-2 | Partial Details (Final Complete details yet to be received) |
| DMTCL | NA |
| POWERLINKS | NA |
| Sterlite (ENICL, OGPTL, PKTCL) | NA |
| TVPTL | NA |
| Alipurduar Transmission Limited | NA |
| Powerlink | NA |
| CBPTCL | NA |
| OPTCL | Submitted (Revised list given to OPTCL for submission) |
| WBSETCL | Submitted |
| BSPTCL | Submitted |
| DVC | Submitted |
| JUSNL | NA |

ERLDC may explain.

**Deliberation in the ERPC Meeting**

*ERPC advised Member Secretary, ERPC to convene a meeting with the Transmission Licensees to resolve the issue.*

**ITEM NO.4: INITIATIVE OF POSOCO ON CAPACITY BUILDING OF SLDCS**

POSOCO has undertaken an initiative for Capacity Building of SLDC Employees. POSOCO shall give a presentation to showcase POSOCO's initiative on Capacity Building in the last one year as well as garnering the views of all the Constituents of Eastern Region with respect to the Capacity Building initiative in the next year i.e. from April, 2019 to March, 2020.

POSOCO may give presentation.

**Deliberation in the ERPC Meeting**

*Director (HR), POSOCO gave a detailed presentation regarding the initiative of POSOCO on Capacity Building of SLDCs. ERPC advised all constituents to participate in the Capacity Building Programme of ERPC.*

**ITEM NO.5: CAPACITY BUILDING PROGRAMME OF EASTERN REGION FUNDED THROUGH PSDF**

The following projects have been granted final approval of PSDF Monitoring committee:

1) Training for Power System Engineers
2) Training on Power Market Trading at NORD POOL Academy for Power System Engineers of Eastern Regional Constituents

The Sanction by Ministry of Power, GOI for the PSDF grant has been received for both the projects and subsequently Agreement with Nodal Agency (i.e. NLDC have also been signed for both the projects in September, 2018.

**A. Training for Power System Engineers of various constituents of Eastern Region.**

This program is basically meant for young entry level engineers working in State Load Despatch centres, State Transmission Utilities, State Gencos, ISGS, DISCOMS & others in Eastern Region, ERLDC, ERPC, CEA, MoP. A sanction of Rs. 61 lacs has been granted from PSDF for this project. The following are being covered in the training programme:

1. Basic understanding of Power system elements. Substation operation & maintenance best practices for entry level engineers of constituents
2. Better Understanding of the nuances of Power system protection for entry level engineers of constituents
3. Understanding latest technologies and developments on power system protection.
4. To undertake operational studies (basic load flow, computation of TTC/ATC etc.)
5. Commercial settlement mechanisms as per CERC regulations, basic understanding on implication of CERC regulations & various regional accounts

Total 8 nos. of programs each consisting of five days are to be conducted during the duration of two years. Each batch will comprise of 30-40 nos. of participants

The programme is to be executed by Eastern Regional Power Committee (ERPC) in consultation with Asia Institute of Power Management (AIPM), CESC Ltd.

*As per the decision of 39th& 40th ERPC meetings, ERPC Secretariat has completed the followings:*

i) Finalized and entered into an agreement for imparting the above training in 8 batches with AIPM, CESC.

ii) Requisition for 1st and 2nd installment of fund has been submitted to NLDC and received the funds in ERPC PSDF account from PSDF nodal agency.

iii) The 1st training programme was organized from 22nd to 26th July, 2019 on Power System protection at AIPM, CESC.

iv) The 2nd training programme was organized from 18th November to 22nd November, 2019 on Latest Developments in Commercial Aspects of Power Management at AIPM, CESC.

v) Payment for the above training as per the terms of the contract:

   a. Payment of ₹ 7,31,600/- made to AIPM, CESC Ltd. against invoice for 1st batch of training programme.

   b. An invoice of ₹ 7,31,600/- has been received from AIPM, CESC Ltd. towards the 2nd batch of the training programme.

   c. After the release of payment for 2nd batch, the requisition for 3rd instalment of PSDF fund to be placed before PSDF Nodal Agency.

**ERPC may approve the followings:**

i) Release of payment amounting to Rs. 7,31,600/ to AIPM(CESC) towards charges for the second batch of training program

ii) To place requisition before PSDF Nodal Agency for release of 3rd installment.

**Deliberation in the ERPC Meeting**

*ERPC authorised Member Secretary, ERPC to release payment of Rs. 7,31,600/- to M/s AIPM, CESC Limited towards charges for the 2nd Batch of the Training Programme. ERPC further authorised Member Secretary, ERPC to approach PSDF Nodal Agency for release of 3rd instalment.*

**B. Training on power market trading at NORD POOL Academy for Power System Engineers of Eastern Regional Constituents**

This programme was meant to contribute towards capacity building and assist the development of a commercially viable and vibrant power market in India. It will also give a unique opportunity to the Indian participants to learn from the best industry practices and most enriching experiences of Nordic countries in running one of the most successful power exchanges in the world. It would benefit the participants from the State Transmission Utilities (STUs), Distribution Companies, State

Load Despatch Centres (SLDCs), Generators (including ISGS), ISTS Licensees in Eastern Region, Power System Operation Corporation (POSOCO) and Eastern Regional Power Committee (ERPC) Secretariat. Participation from Central Electricity Authority (CEA), Ministry of Power, GoI has also been envisaged. A sanction of Rs. 5.46 Crore has been granted from PSDF for this project. The following would be covered in this capacity building programme at NORD POOL Academy:

1. To understand the factors that contributed to the success of the power market liberalization in the Nordic region.
2. Capacity building programme to handle trading of short term surplus power on the Power exchange
3. Price discovery in NORD pool.
4. Determination of transmission tariff and sharing of transmission charges and losses.
5. Financial settlement of power trades, imbalances.
6. Organization of forwards, futures and options market in power, their operation procedures, hedging etc.
7. Retail supply market, Market clearing and settlement, Market surveillance, Imbalance settlement
8. Roles and responsibilities of various stakeholders, Reporting and information sharing, Optimum power reserve estimation, Real time system operation and management
9. Efficient maintenance practices of transmission grids
10. Better Understanding of the regulatory and policy framework of the power market in European countries.
11. Learning the best industry practices in Nordic power market

**Details of Activities for Project :**

- The programme will be implemented in four batches over the period of 13 months.
- A batch of 15 participants will participate for each 5-day program from various utilities of Eastern Region including SLDCs, STUs, Generators, ISTS Licensees, DISCOM, POSOCO, ERPC Sect, CEA and Ministry of Power.
- Training Modules to cover various aspects of Power market operations, impact of renewables through imbalance handling in energy trading as well as cross border trading with neighbouring countries.

- Training Modules for such programs are designed after consultation with partner M/s PTC and NORD POOL Consulting.
- Field visits will be arranged during the programs to impart practical training to the participants

The programme is to be executed by Eastern Regional Power Committee (ERPC) in consultation with partner M/s PTC and Nord Pool Consulting

The following bathes were formed comprising of officers from various utilities of Eastern Region including SLDCs, STUs, Generators, ISTS Licensees, DISCOM, POSOCO, ERPC Secretariat, CEA and Ministry of Power for the above training.

| **Batch** | **No of Batches** | **No. of participants per batch** | **Total Participants** |
|---|---|---|---|
| Batch A – Senior Executives<br>( ERPC members or equivalent Executives) | 1 | 15 | 15 |
| Batch B Senior Executives<br>(ERPC/ TCC members or equivalent Executives) | 1 | 15 | 15 |
| Batch C & D<br>(Middle level Executives) | 2 | 15 | 30 |

The detailed list of constituent–wise participants was approved in 39th ERPC**.** *As per the decision of 39th& 40th ERPC meetings, ERPC Secretariat has completed the followings:*

*i) The 1st training programme was conducted for senior executives from 17th to 21st June, 2019 at Nord Pool, Norway.*

*ii) The 2nd training programme was conducted for mid-level executives from 19th to 23rd August, 2019 at Nord Pool, Norway.*

*iii) The report on participation from ER Constituents vis-a-vis approved list of constituent-wise participation was placed in 41st ERPC meeting and same is at* ***Annexure-V****.*

*iv) Requisition for 3rdinstallment of fund i.e. 60% of the awarded amount was placed and the fund has been received from PSDF fund.*

*v) The nomination for 3rd Batch for mid-level executives has been invited from the constituents of ER, CEA, NLDC and MoP, GOI.*

*vi) For third batch, number of nominations invited is more than 15to take into accountthelast minutes withdrawal/cancellation of nomination etc. as encountered during the last two batches.*

*vii) The training for 3rd batch is tentatively scheduled from 16thMarch, 2020 to 20thMarch, 2020 (excluding journey periods) at Nord Pool, Norway.*

*viii) The 4th Batch for senior level executives would be tentatively scheduled from 20th April, 2020 to 24th April, 2020 (excluding journey periods) at Nord Pool, Norway.*

*ix) Payment for the 1st Batch of the training as per the terms of the contract:*

a. *Total amount of ₹ 95,74,521/- (Rupees Ninety five Lakh Seventy four Thousand Five Hundred Twenty one only) has been reimbursed to PTC towards the total expenditure for the 1st batch*
b. *A payment of ₹ 16,94,690/- made to PTC India Ltd. towards facilitation charges in respect of 1st batch (@ 15% plus taxes applicable)*

*x) Payment for the 2nd Batch of the training as per the terms of the contract:*

a. *Total amount of ₹ 76,77,866/- (Rupees Seventy six Lakh Seventy seven Thousand Eight Hundred Sixty six only) has been reimbursed to PTC towards the expenditure for the 2nd batch.*
b. *The payment for final bill and facilitation charges would be released after the reconciliation of all expenditure made by PTC during the training.*

***ERPC may approve the above payments already made with the approval of Chairperson, ERPC and further authorise Member Secretary, ERPC for the followings:***

***i) To release payment to PTC for the balance amount and facilitation charges of PTC for the second batch against the bills raised by PTC India Ltd.***

***ii) To release advance payment to the extent of 80% to PTC for the third and fourth batch as per the terms and conditions of the contract.***

***iii) To suitably fill up the vacancy created in the third batch and fourth batch among the eligible constituents due to inadequate no. of nominations received.***

**Deliberation in the ERPC Meeting**

*ERPC authorised Member Secretary, ERPC for the followings:*

*i) To release payment to PTC for the balance amount and facilitation charges of PTC for the second batch against the bills raised by PTC India Limited.*

*ii) To release advance payment to the extent of 80% to PTC for the third batch and fourth batch as per the terms and conditions of the contract.*

*iii) To suitably fill up the vacancy created in the third batch and fourth batch among the eligible constituents due to inadequate no. of nominations received.*

**ITEM NO.6: WEB BASED PROTECTION DATABASE AND DESKTOP BASED PROTECTION SETTING CALCULATION TOOL FOR EASTERN REGIONAL GRID, UNDER PSDF FUNDING**

The above project has been implemented by PRDC and declared **Go Live** on 31st October 2017. As per the scope of project the after declaration of GoLive of the project will be under Support period for five (5) years starting from 01.11.2017. As per the LoA the terms for the five year support period are follows:

- Support period shall be for a period of 5 years beyond the date of Go Live.
- Technical support for the protection setting computational tool and training programs on every quarterly basis.
- Updating and entering the protection and network database of the ER region for the next five years on regular/daily basis which shall include changes in system configuration, addition of new substations, generators, etc.
- Bug fixing and free updation of the software release during the support period.
- Performing the grid disturbance simulation for the events occurring in the system on daily basis.
- Deployment of two qualified protection engineers full time for the support period. The engineers shall be available for the technical support during official working hours.
- Providing the expert technical advisory from the protection expert on the grid disturbance and simulation studies in the events of faults.

Now, the project has completed two(2) years and running successfully with all the necessary updates. The vendor has submitted a bill for ₹ 71,64,951/- (Rupees Seventy one Lakhs Sixty four Thousand Nine Hundred and Fifty One only) on completion of the 2nd Year of Support Period starting from 01.11.2018 to 31.10.2019 which is 20% of contract value for the 5 year support period. A committee comprising of officers of ERPC has been formed for verification of the works carried out by M/S PRDC during the 2nd year Support Period. The payment will be released after the scrutiny of the works carried out during the subjected period.

Therefore, ERPC may approve the payment of ₹ 71,64,951/- for the 2nd Year Support Period starting from 01.11.2018 to 31.10.2019 which is to be released from PSDF Account of ERPC.

ERPC may approve.

**Deliberation in the ERPC Meeting**

*ERPC approved the release of payment amounting to Rs. 71,64,951/- to M/s PRDC for the 2nd year support for the period from 01.11.2018 to 31.10.2019 from the PSDF A/c of ERPC.*

**ITEM NO.7: NATIONAL CONFERENCE** ON **"FUTURE SCENARIO AND CHALLENGES OF INDIAN POWER SECTOR"**

In the 40th ERPC meeting, an amount of Rs. 10 lacs was sanctioned for 2019-20 from ERPC Establishment Fund for organising workshop/seminar. In 2018-19, similar fund was sanctioned and utilised for holding a one day workshop through AIPM(CESC) for enhancing managerial skill, a two day workshop at Upper Kolab, OHPC and a three day training program for sub-station and transmission line protection.

This year NPTI in co-ordination with ERLDC and ERPC is going to organise a National Conference on **"Future Scenario and Challenges of Indian Power Sector"** on **9th& 10th January, 2020 at Kolkata**.

Various activities in this respect are being carried out jointly by NPTI, ERPC & ERLDC to make the programme successful. The Conference will focus on various emerging issues on Generation, Transmission, Distribution as well as Regulatory aspects including e-mobility, battery storage technologies. Distinguished Experts / Professionals in the respective fields are invited to deliver lectures / presentations especially on the following areas:

- Implementation of FGD for improvement in operational parameters
- Integration of Renewable Energy System
- Green Energy Corridors
- Application of FACTS, HVDC, URTDSM
- Power Markets in India (Power Trading & Power Exchange)
- Commercial implications in implementation of RRAS, FRAS, SCED & AGC etc.

NPTI, Durgapur has sent the relevant brochure to most of Power Utilities across the country including educational institutions to invite nominations from Mid – Level / Young Engineers as well as Sponsorship for the National Conference.

ERPC Secretariat has also requested to ER Constituents to send nomination of engineers vide its letter dated 28.11.2019 by way of registering with NPTI, Durgapur within 31.12.2019.

An amount of Rs. 5 Lakh has been earmarked to be allocated to NPTI, Durgapur from "ERPC Establishment Fund" out of Rs.10 lacs already sanctioned for 2019-20 for organising the above conference.

ERPC may kindly note and nominate

**Deliberation in the ERPC Meeting**

*ERPC appreciated the efforts of ERPC Secretariat and ERLDC to jointly organise a National Conference on "Future Scenario and Challenges of Indian Power Sector" with National Power Training Institute (NPTI), Durgapur on 9th & 10th January, 2020 at Kolkata. ERPC advised all the constituents to suitably nominate participants for the above conference. ERPC also noted the proposed utilisation of Rs. 5 lakhs from ERPC Establishment Fund out of Rs.10 lacs already sanctioned for 2019-20 for organising seminar/workshop etc.*

**ITEM NO.8: ORGANISING NPC MEETING**

The last NPC meeting was held on 22.11.2019 under the aegis of NRPC. The NPC meeting is organised on rotational basis. The next NPC meeting is tentatively scheduled in April,2020. It has been decided in the NPC meeting that ERPC shall organise the above meeting in consultation with CEA and Chairperson, ERPC. It is requested to allocate an amount of Rs. 6 lacs from ERPC Establishment Fund for organising the above.

ERPC may approve.

**Deliberation in the ERPC Meeting**

*ERPC approved the proposal of Member Secretary, ERPC to allocate an amount of Rs. 6 Lakh from ERPC Establishment Fund for organising the NPC Meeting.*

**ITEM NO.9: REPORTING OF EXPENDITURES FROM ERPC FUNDS**

Expenditures from ERPC Establishment Fund and ERPC Fund are made as per the approved regulations on the funds. However, the following expenditures have been made which are placed for approval/information of ERPC :

**9.1: EXPENDITURES INCURRED FROM 'ERPC ESTABLISHMENT FUND' – For approval of ERPC**

i) Expenditure of Rs.49,000/- towards daily allowance of two ERPC Secretariat Officersfor Study tour to Nordpool Academy (Norway). The programme was arranged by PTC and funded from PSDF.

ii) Expenditure of Rs.8000/- to R.N. Das & Co for audit of the accounts related to PSDF funded "Study programme on power trading at Nordpool Academy (Norway)".

iii) Rs. 59000/- to VS Towers & Contractors Pvt. Ltd. for supply of REA Reporting Software.

iv) Settlement of TA Bill for Member Secretary, ERPC (for return journey portion) for attending TCC/ERPC Meeting at Port Blair and TA bill of Sri G.Rao, Executive Engineer, ERPC for cancelled trip for NPC meeting 22.11.2019.

Members may approve the above expenditures.

**Deliberation in the ERPC Meeting**

*ERPC approved the above expenditure.*

**9.2: EXPENDITURESINCURRED FROM 'ERPC ESTABLISHMENT FUND' – For information of ERPC**

With prior approval of ERPC authorising Member Secretary to make payments, the following expenditures have been made :

i)Rs.1,73,154/- towards Simulator Training of engineers of ER constituents at Bakreswar Thermal Power Station of WBPDCL. ERPC it its 40th meeting held on 16.03.2019 had approved the proposal for the training programme (MoM Item No.6.4).

ii) Rs. 3,78,000/- to CPWD towards balance payment for replacement of LT panel in ERPC Staff Quarters. ERPC had approved the proposal for replacement of defective LT panel in 40th meeting dated 16.03.2019 (MoM Item No.10C).

iii) Rs. 21,45,240/- to PWC for development of software packages for Reactive Account, RRAS Account, E-service book etc. ERPC in its 40th meeting held on 16.03.2019 ( MoM Item No. 6.5).

iv) Rs.68,57,630/- to the consolidated fund of Govt. of India towards reimbursement of the actual expenditure incurred by the office of the ERPC Secretariat for the period July'19 to September'19 (as per para-2 of regulations on ERPC Establishment Fund).

Members may please note.

**Deliberation in the ERPC Meeting**

*ERPC noted.*

## ITEM NO.10: LIST OF TASKS PERFORMED BY ERPC SECRETARIAT DURING THE PERIOD FROM AUGUST'19 TO NOVEMBER'19

List of the works performed by ERPC Secretariat during the period from August, 2019 to November, 2019is given in **Annexure -X**

Members may please note.

**Deliberation in the ERPC Meeting**

*ERPC noted.*

## ITEM NO.11: OUTSTANDING CONTRIBUTION OF PARTICIPATION FEE

In the 33rd ERPC meeting held on 25th June 2016 it was decided apart from Members, all other Users/Utilities intending to avail services of ERPC have to pay 'Participation Fee' by contributing to 'ERPC Establishment Fund' and ' ERPC Fund' at an equal yearly contribution fixed for ERPC Members. Accordingly, letters were issued to Users/Utilities from time to time for payment of 'Participation Fee'. Contributions from the following organisations are still due:

i) Ind-Barath Energy (Utkal) Ltd. (IBEUL) : Rs.48 lakh (for 2016-17,2017-18 & 2018-19) – Bills not raised for the year 2019-20.

ii) Gati Infrastructure Private Ltd. (GIPL): Rs.48 lakh (for 2017-18, 2018-19& 2019-20)

Several letters were issued from ERPC Secretariat to GIPL requesting payments but there has been no response.

Members may discuss and decide.

**Deliberation in the ERPC Meeting**

*ERPC authorised Member Secretary, ERPC to take up with Gati Infrastructure Private Limited for liquidation of outstanding contribution of Participation Fee for 2017 - 18, 2018 – 19 and 2019 – 20.*

## ITEM NO.12: ERPC ESTABLISHMENT FUND FOR THE YEAR 2019-20

Contributions have been received from all members of ERPC for the year 2019-20.

This is for information of members.

**Deliberation in the ERPC Meeting**

*ERPC appreciated the timely contributions made by the members.*

**ITEM NO.13: ERPC FUND FOR THE YEAR 2019-20**

Contributions have been received from all members of ERPC for the year 2019-20.

This is for information of members.

**Deliberation in the ERPC Meeting**

*ERPC appreciated the timely contributions made by the members.*

**ITEM NO.14: Finalisation of dates and venue for the next ERPC & TCC meetings**

The roster for hosting of ERPC meetings is given below**:**

| Sl. No. | Host Organisation |
|---|---|
| 1. | **WEST BENGAL**<br>-hosted 26th ERPC Mtg. on 18.01.2014 |
| 2. | DVC<br>-hosted 38th ERPC Mtg. on 30.06.2018 |
| 3. | NHPC<br>- hosted 40th ERPC Mtg. on 16.03.2019 |
| 4. | POWERGRID<br>- hosted 37thERPC Mtg. on 17.06.2018 |
| 5. | **SIKKIM**<br>- hosted 29th ERPC Mtg. on 14.02.2015 |
| 6. | PTC<br>- hosting42ndERPC Mtg. on 13.12.2019 |
| 7. | ODISHA<br>- hosted 31st ERPC Mtg. on 14.11.2015 |
| 8. | JHARKHAND<br>- hosted 32nd ERPC Mtg. on 20.02.2016 |
| 9. | BIHAR<br>- hosted 33rd ERPC Mtg. on 25.06.2016 |
| 10. | NTPC<br>- hosted41st ERPC Mtg. on 27.03.2019 |
| 11. | CESC<br>- hosted 34th ERPC Mtg. on 19.11.2016 |
| 12. | APNRL<br>- hosted 23rd ERPC Mtg. on 22.12.2012 |
| 13. | MPL<br>- hosted 35thERPC Mtg. jointly on 25.02.2017 |
| 14. | GMRKEL<br>-hosted 36th ERPC Mtg. on 26.08.2017 |
| 15. | NVVN<br>- hosted 39th ERPC Mtg. Om 17.11.2018 |

| | |
|---|---|
| 16. | TPTCL<br>- hosted 35thERPC Mtg. jointly on 25.02.2017 |
| 17. | JITPL<br>- yet to host ERPC Mtg. |
| 18. | Teesta Urja Ltd.<br>- yet to host ERPC Mtg. |

It is also proposed that 43rd TCC& ERPC meetings may be hosted by **West Bengal** (WBSEDCL, WBSETCL, WBPDCL & DPL) in March'20.**Energy & Power Department, Govt. of Sikkim,** is requested to host the next (44th ) TCC and ERPC meetings in June'20

Members may discuss and finalise.

**Deliberation in the ERPC Meeting**

*It was decided that the 43rd TCC and ERPC Meetings shall be hosted by Odisha tentatively in the 3rd week of March, 2020. The dates shall be finalised in consultation with Odisha and Chairperson, ERPC.*

*Further, it was decided to request West Bengal to host the 44th TCC and ERPC Meetings in the month of June, 2020.*

**ITEM NO.15: Any other item with the permission of the Chair**

*Meeting ended with vote of thanks to the chair.*

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Minutes

of

# 42nd TCC Meeting

of

# EASTERN REGIONAL POWER COMMITTEE

**Date: 12th December, 2019**

**Venue: Port Blair**

# EASTERN REGIONAL POWER COMMITTEE, KOLKATA

## MINUTES OF 42ND TCC MEETING

**Date: 12th December, 2019 (Thursday)** **Place: Port Blair**

| ITEM NO.A1: | CONFIRMATION OF THE MINUTES OF 41ST TCC MEETING |
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The minutes of the 41st TCC meeting held on 26th August 2019 at Kochi were circulated vide letter no.ERPC/TCC&COMMITTEE/14/2019/5601-67dated 4th September, 2019.

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

Members may confirm the minutes of 41st TCC meeting.

## Deliberation in the TCC Meeting

*Members confirmed the minutes of 41st TCC Meeting without amendment.*

## PART B: ITEMS FOR DISCUSSION

| ITEM NO. B1: | Performance of Constituents of ER after implementation of DSM (5th amendment) Regulations, AGC & SCED of CERC |
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DSM (5th Amendment) Regulations, 2019 was notified by Honorable CERC on 28th May, 2019. The said amendment has been implemented w.e.f 3rd June, 2019. Accordingly, DSM account is being prepared and issued by ERPC Secretariat as per 5th Amendment Regulations.

ERPC Secretariat shall give a brief presentation on the performance of various constituents after the implementation of the latest regulations.

*In 41st CCM, ERPC Secretariat gave a brief presentation on the behaviour of various constituents & grid frequency profile after implementation of DSM (5th amendment) Regulations'2019 and SCED regulations.*

*During the presentation, it was highlighted that there was significant over drawl by Bihar, West Bengal & DVC and under injection by generators FSTPP-I &II, KhSTPP -II and APNRL.*

*It was also observed that there was unrestrained under-injection by APNRL during the months of September & October 2019 and the per unit cost of under-injection was far below their variable charge. Hence, members took serious note of this and APNRL representative assured the forum of adhering to their generation schedule in future.*

*Keeping in mind about the grid security and stability it was advised to all the constituents to adhere to their schedule.*

TCC may discuss.

## Deliberation in the TCC Meeting

*ERPC Secretariat gave a brief presentation on the behaviour of various constituents & grid frequency profile after implementation of DSM (5th amendment) Regulations'2019 and SCED regulations. Presentation is enclosed at* ***Annexure-B1****.*

*It was found out that all the constituents adhering to schedule except for WB and Teesta-V. TCC requested all the constituents to adhere to the schedule.*

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| **ITEM NO. B2:** | **Establishment of State-of-the-Art Unified Centralized Network Management System U-NMS for ISTS and State Utility Communication Network in Eastern Region** |

CERC notified Communication Regulation which envisages Centralized Supervision System for ISTS Communication.

As per the regulation clause no 7.2 (vii):

*"CTU shall be the Nodal Agency for supervision of communication system in respect of inter-State communication system and will implement centralized supervision for quick fault detection and restoration."*

The issue was discussed in 24th SCADA O&M Meeting held at ERLDC on 14th August 2019, wherein Member Secretary, ERPC informed that a Committee is required to be formed for the assessment of technical requirements to facilitate monitoring of ISTS communication network in line with CERC regulation.

Accordingly, a Committee was formed and the Committee met on 24th October 2019 at ERLDC, wherein POWERGRID made a detailed presentation on Unified Network Management System (U-NMS) Project to be implemented for managing Project for ISTS & State utilities communication network at State, Regional &National level.

Members discussed the technical aspects of U-NMS proposal and generally found it is feasible technically for the U-NMS proposal. All Constituents have given their consent for implementation of U-NMS Project for Central Sector as well as for the State Sector/Constituents.

POWERGRID informed that the estimated cost for Eastern Region ISTS and state network U-NMS is **Rs. 99.93 Crs excluding AMC cost which is estimated as Rs. 2.6 Crs for 6 years after Warrantee period.** U-NMS Project implementation Schedule is considered as 24 months. Investment made by POWERGRID is proposed to be recovered through tariff as notified by CERC. Also it has been deliberated and agreed upon that AMC for U-NMS shall be carried out by POWERGRID itself for Central as well as State sector.

This issue was further deliberated in the 2nd TeST meeting held on 26.11.2019 at ERPC Kolkata.

*In the meeting it was pointed out by Member Secretary, ERPC that U-NMS would help in computing the communication availability. The procedure of communication availability was suggested in the draft CERC (Terms and Conditions of Tariff), 2019 but the same was not incorporated in the final tariff regulation, 2019.*

*All ER Constituents informed that as the separate availability certification of communication system has not been notified by CERC, so this much of investment needed further scrutiny.*

*Powergrid informed that for better system visibility, redundant path identification and fault finding for whole communication network (either inter-regional or intra-state) the centralized U-NMS would certainly help and improve the availability of communication network. POWERGRID also mentioned visibility of all ISTS & State Utility Communication Nodes in single NMS would be possible through central U-NMS. Further, Powergrid informed that a number of regions have already accorded approval for implementation of the project.*

*The issue was also discussed in 41st Commercial Sub Committee Meeting held on 27th November 2019. During deliberation, it emerged that the project was initially envisaged based on the guidelines of CERC in respect of certification of Communication system availability by RPCs. The idea was floated by CERC during the draft stage of Tariff Regulations 2019-2024. However, in the final Tariff Regulations 2019-24, this idea was dropped by the Commission due to lack of clarity.*

*Powergrid representative informed that based on the technical requirement of the system the U-NMS project is necessary for monitoring of communication network at State, Regional & National level.*

*POWERGRID was advised to submit the details of the project to ERPC secretariat within a week along with relevant CERC regulations in respect of this project. Further, POWERGRID was asked to also submit revised Cost estimate of the project by considering the State NMS project along with breakup of each component, recovery mechanism and apportionment of the cost among constituents etc.*

*Upon discussion it was also found that the U-NMS project is proposed to be implemented in pan-India basis and the recovery of the cost of the project shall be on all India basis.*

*POWERGRID informed that the project has already been approved in WR, NR & NER regions.*

*Further, POWERGRID was advised to give a detailed presentation on the same in forthcoming TCC meeting.*

*Matter was referred to upcoming TCC/ERPC for further concurrence.*

PGCIL may give a presentation. Members may discuss.

## Deliberation in the TCC Meeting

*After detailed deliberation TCC recommended to ERPC to give in principle approval for go-ahead to Powergrid to undertake the U-NMS project for Eastern region subject to the following:*

1. *PGCIL shall hold separate discussion with each state of ER to understand the NMS system in the respective states if any already existing within the state and to assess the integration requirement including the cost thereof for each state.*
2. *The details are to be placed by PGCIL in the TeST meeting scheduled to be held in January 2020.*
3. *After finalization of the scheme the revised cost shall be placed by PGCIL in the next TCC meeting.*

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| **ITEM NO. B3:** | **Implementation of Automatic Generation Control in Eastern Region** |

In compliance to CERC's direction in order dated 06/12/2017 in petition no 79/RC/2017, AGC was commissioned in NTPC Barh on 01st August 2019 and operationalized since 23rd August, 2019.

Vide order dated 28th August 2019, CERC in Petition No.: 319/RC/2018 directed that all the ISGS stations whose tariff is determined or adopted by CERC shall be AGC-enabled and the ancillary services including secondary control through AGC be implemented as per the following direction:

I. All thermal ISGS stations with installed capacity of 200 MW and above and all hydro stations having capacity exceeding 25 MW excluding the Run-of-River Hydro Projects irrespective of size of the generating station and whose tariff is determined or adopted by CERC are directed to install equipment at the unit control rooms for transferring the required data for AGC as per the requirement to be notified by NLDC. NLDC shall notify the said requirements within one month of this order.

II. All such ISGS stations whose tariff is determined or adopted by CERC shall have communication from the nearest wide band node to the RTU in the unit control room.

III. The Central Transmission Utility (CTU) is directed to have communication availability from NLDC/ RLDCs to the nearest wide band node/ switchyard for the generating stations in a redundant and alternate path ensuring route diversity and dual communication.

IV. The NLDC is also directed to commission the required communication infrastructure.

V. The expenditure as a result of compliance of the above directions may be claimed as per relevant regulations or provisions of the PPA.

VI. The NLDC is directed to monitor implementation of the above directions so that all the ISGS stations whose tariff is determined or adopted by CERC are AGC-enabled within six months of this order.

VII. The framework regarding compensation for AGC support and deviation charges as stipulated in the Commission's Order in Petition no. 79/RC/2017 dated 06.12.2017 shall apply to the five pilot projects as also to other ISGS as and when they are AGC enabled. This arrangement shall remain in place till the relevant regulations inter alia on compensation for AGC services are framed by the Commission.

VIII. NLDC/RLDCs are allowed to operate the AGC system for enabling the signals to the power plants at the earliest.

IX. All new thermal ISGS stations with installed capacity of 200 MW and above and hydro stations having capacity exceeding 25 MW excluding the Run-of-River Hydro Projects irrespective of size of the generating station and whose tariff is determined or adopted by CERC shall mandatorily have the capability to provide AGC support.

All concerned plants may please ensure taking necessary action for arranging the communication (through redundant and alternate paths) from the existing nearest wideband communication node to their unit control rooms through two fiber optic cables, in coordination with CTU. It may please be noted that all the ISGS stations whose tariff is determined by or adopted by CERC should be AGC-enabled before 28th February 2020, as per order of CERC.

**A. Status of implementation of AGC for ISGS stations**

The list of plants identified for AGC operation by NLDC in Eastern Region are as given below:

| S. No. | Power Plant | Thermal/Hydro | Cap (MW) |
|---|---|---|---|
| 1 | Farakka STPS – I & II | Thermal | 1600 |
| 2 | Kahalgaon STPS – II | Thermal | 1500 |
| 3 | Barh STPS | Thermal | 1320 |
| 4 | Maithon Power Limited | Thermal | 1050 |
| 5 | Talcher STPS – I | Thermal | 1000 |
| 6 | Kahalgaon STPS – I | Thermal | 840 |
| 7 | Nabinagar Thermal Power Project | Thermal | 750 |
| 8 | Teesta – V | Hydro | 510 |
| 9 | Farakka STPS – III | Thermal | 500 |
| 10 | MTPS Stage - II | Thermal | 390 |
| 11 | Rangit | Hydro | 60 |

In 161st OCC, all the ISGS stations were advised to implement the AGC within 6 months as per the above CERC order.

In 163rd OCC, NHPC and NTPC informed that they are in process of implementation of AGC at their stations in coordination with NLDC. The technical specifications have been prepared.

This issue was further deliberated in the 2nd TeST meeting held on 26.11.2019 at ERPC, Kolkata.

*MS, ERPC raised concerns about the present reporting of AGC data signal from generating stations to NLDC and concerned RLDC is getting data through NLDC over ICCP protocol.*

*NLDC informed that, as a part of pilot project of AGC, all generating stations' AGC data would be directly reporting to NLDC for first 3 years and the same would be diverted to respective RLDCs after SCADA upgradation.*

*NTPC raised the concern about the bandwidth requirement, list of signals and cable requirement for implementation of AGC.*

*NLDC informed that all generating stations must make arrangement for extending the AGC data signals to the nearest POWERGRID node and POWERGRID shall make available two Ethernet ports (main & its redundant) so that AGC signal from generating stations should reach to NLDC.*

*NLDC further informed that requirement for AGC implementation like list of signals, bandwidth requirement, hardware, software & cable requirement etc. are made available at POSOCO website (*https://posoco.in/spinning-reserves/).

*ERLDC suggested that firewalls should be available at both end i.e. at Generator end as well as NLDC end. NLDC informed that they have a firewall at their end in their system.*

*All generating stations agreed to install adequate level of firewall at their end for extending the AGC signals.*

*ERLDC raised concern about AGC implementation of Nabinagar (BRBCL) as OPGW communication link from generating station to nearest POWERGRID S/S i.e. 400 kV Sasaram is not available.*

*ERPC advised NLDC to add NPGC, Nabinagar (2x660 MW) in AGC implementation list as this station is commissioned in November 2019. NLDC agreed for the same.*

*It was decided to take the above issue to the next TCC/ERPC meeting for further deliberation.*

Members may update.

## Deliberation in the TCC Meeting

*NTPC and NHPC informed that they would place the order by March 2020 and implement the AGC by June 2020. MPL informed that AGC would be implemented by February 2020.*

*NTPC added that since Kahalgaon Stage-I units are quite old, they would not be able implement AGC at Kahalgaon Stage-I units and they are planning to approach CERC for exemption.*

*Powergrid informed that only single communication connectivity is available at MPL, Teesta V and Rangit. Other generating stations are having dual communication connectivity.*

*TCC advised all generating stations to make arrangement for extending the AGC data signals to the nearest POWERGRID node.*

*It was decided to include Darlipalli STPS and NPGC in list of the plants for implementation of AGC.*

**B. Status of implementation of AGC as a pilot project in states**

In 162nd OCC, WBPDCL submitted that Bakreswar TPP is planning to implement AGC but there is no clarity on the source from where to receive the AGC control signal (from SLDC/ERLDC). This aspect needed to be clarified first.

In the meeting, it was clarified that AGC signal for intra-state generating stations would be generated by the concerned SLDC and the relevant communication path is to be established between SLDC to plant. For ISGS stations, the AGC signal would be sent from NLDC.

OCC advised SLDC, WB to establish the required hardware for generating AGC signal at SLDC.

*In 163rd OCC, OPGC and SLDC, Odisha were advised to formulate the plan jointly for implementation of AGC. OCC advised them to submit the schedule of implementation of AGC to ERPC and ERLDC within a week.*

*All SLDCs and their respective state sector generators were advised to visit Barh STPS as well as to NLDC to have a first-hand knowledge on the implementation and functioning of AGC at control centre level as well as at generating station level.*

Summary of status of implementation:

| State | Station/Unit | Action plan |
|---|---|---|
| DVC | Mejia unit#8 | • Finalization of technical specification, vendors and estimation: 30th November 2019<br>• NIT 31st January 2020<br>• Order placement 30th March 2020<br>• Commissioning of AGC 31st July 2020 |
| West Bengal | Unit-5 of Bakreswar TPP | SLDC, WB to establish the required hardware for generating AGC signal at SLDC. |
| Odisha | Unit#3 of OPGC | SLDC, Odisha and OPGC agreed to submit their plan by 1st week of November 2019 |

Members may update.

## Deliberation in the TCC Meeting

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

*Odisha informed that SLDC and OPGC will sit together and finalise the scheme.*

*WBPDCL 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 state.*

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

**C. Issues related to AGC at Barh Stage-II (both units)**

NTPC informed that AGC at Barh Stage-II (both units) had been implemented on 23rd August 2019. But they are facing following issues related to AGC Implementation:

1. AGC Down schedule during Technical Minimum SG (Effective Ex Bus Schedule less than Technical Minimum- 680.63 MW)
2. AGC UP Schedule during full SG (Effective Ex Bus Schedule more than full capacity-1237.5 MW)
3. Ramp Rate more than declared Ramp Rate (90 MW in a 15 Min block) due to AGC Schedule.
4. Violation of sign change regulation due to AGC schedule

NTPC may explain.

TCC may discuss.

## Deliberation in the TCC Meeting

*NTPC gave a presentation on the issues related to AGC at Barh Stage -II. Presentation is enclosed at **Annexure-B3**.*

*NLDC confirmed that ramping issue has already been addressed.*

*NTPC and NLDC agreed to interact and settle the remaining issues.*

| **ITEM NO. B4:** | **Strengthening of OPGW Network within the ER-Grid and connectivity with other regions** |
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In 23rd SCADA O/M meeting held on 06.03.2019, ERLDC requested ERPC Secretariat to form a committee which could ascertain the requirement of OPGW along with communication equipment after considering the route diversity to bring reliability in Power System operation as per requirement.

Accordingly, a Committee was formed. The Committee met on 14.08.2019 and 24.10.2019, wherein the members discussed about the requirement of additional Inter-regional and Intra-regional OPGW links for strengthening of Eastern Regional OPGW network.

Followings were found to be the list of additional OPGW link, which envisaged by the Committee for implementation along with communication equipment and DCPS:-

| Sl No | Corridor | Selected lines for laying OPGW | Length (km) |
|---|---|---|---|
| 1 | ER- NR (ISTS) | 765 kV S/C Gaya-Varanasi Line –l | 265 |
| 2 | | 400 kV D/C Patna – Balia Line –I | 195 |
| 3 | ER – WR | 765 KV S/C Ranchi – Dharamjaygarh Line-1 | 305 |

| | | | |
|---|---|---|---|
| 4 | (ISTS) | 765 KV S/C Jharsugada – Dharamjgarh Line-1 | 149 |
| 5 | ER-SR (ISTS) | 400 kV D/C Jeypore – Gazuwaka | 221 |
| 6 | ISTS network | 400 kV D/c Nabinagar (BRBCL) Generating Station – Sasaram | 82 |
| 7 | | 400 kV Farakka –Purnea S/C | 160 |
| 8 | | 400 kV Farakka-Sagardighi-Subhasgram S/C | 301 |
| 9 | | 400kV Maithan (PG) – Durgapur (WB) D/C | 128 |
| 10 | | 400KV Durgapur (PG) – Sagardighi (WB) S/C | 72 |
| 11 | DVC network | 220 KV KTPS – Giridih( Line # 251 , 252 ) D/C | 101 |
| 12 | | 132 KV Jamuria – Ramkanali( Line # 90) S/C | 53 |
| 13 | | 132 KV Ramkanali – CTPS ( Line # 60) S/C | 70 |
| 14 | | 132 KV Purulia – Jamshedpur ( Line # 39,40) D/C | 87 |
| 15 | | 132 KV CTPS – Gola ( Line # 6,7) D/C | 67 |
| 16 | | Howrah (DVC) – Howrah(WB) D/C | 1 |
| 17 | JUSNL network | 220 kV Daltonganj (JUSNL) – Latehar (JUSNL) LILOed at Daltanganj (PG) D/C | 90 |
| 18 | | 220 kV Jodda (OPTCL)- Ramchandrapur (JH) S/C | 130 |
| 19 | | 220 kV Chandil (JH)- Ranchi (PG) (up to LILO point) D/C | 90 |

All constituents agreed for implementation of the above-mentioned OPGW links in Central Sector (Sl. 1 to 10) by POWERGRID.
DVC also requested POWERGRID to take up the implementation of OPGW links of DVC Sector (Sl. 11 to 16).
JUSNL also requested POWERGRID to take up the implementation of OPGW links of JUSNL Sector (Sl. 17 to 19).

The detailed report is available at ERPC website in Miscellaneous/Reports section.

*In 2nd TeST Meeting held on 26.11.2019, ERPC Secretariat pointed out that in ER-WR corridor, both OPGW links i.e. 765 KV S/C Ranchi – Dharamjaygarh Line-1 and 765 KV S/C Jharsugada – Dharamjgarh Line-1 will terminate at Dharamjaygarh S/s so this would not form the redundant communication path through ER-WR corridor. Hence, it was suggested to have OPGW on 765 KV S/C Jharsugada – Dharamjgarh Line-1 (length - 149 km).*

*Members requested POWERGRID to explore for alternate path or the other possibility to include in future projects.*

*POWERGRID agreed for the same and informed that they will suggest an alternative path for ER-WR connectivity.*

*ERPC Secretariat asked POWERGRID about the tentative cost of the project, the methodology to recover it and how it will be apportioned among the constituents.*

Thereafter, Powergrid vide letter dated 3rd December 2019 submitted that total cost estimate for implementation of the project would be Rupees 83 Cr. (Copy of the letter is enclosed at **Annexure-B4**).

Powergrid may apprise. TCC may discuss.

## Deliberation in the TCC Meeting

*Powergrid was advised to re-ascertain the length of the individual transmission lines again.*

*TCC recommended to ERPC to approve the project related to strengthening of OPGW network within ER Grid and connectivity with the other regions at an estimated cost of Rs 83 crores as per the details given in the **Annexure-B4**.*

| **ITEM NO. B5:** | **Review of the PSS Tuning of Generators in Eastern Region** |
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On 31st January 2019, PSS Tuning Meeting was held at ERPC. All generating utilities were advised to complete the PSS tuning of their plant at earliest for improvement of damping in the grid during transients. In addition, the tuning reports have also to be submitted to ERLDC/ERPC for their validation.

In line with this, ERLDC has communicated to following utilities in view of the recent oscillation observed during various events:

| **Generating Power Plant** | **Observation** | **Status of Action Plan to be informed to OCC** |
|---|---|---|
| All Units of DVC Generating Plant | Oscillation Observed at DSTPS on 24th April 2019 and other Oscillation events in the past. | DVC gave consolidated plan for its units in 162nd OCC |
| All Units of OPGC and OHPC, Sterlite | PSS are tuned long back and in many units PSS have not been tuned but are in service. | OPGC units—Feb 2020 |
| Sikkim Hydro Complex (Teesta-III, Teesta-V, Chujachen, Dikchu, Tashiding, Jorethang) | In view of Oscillation during the 16th April 2019 events and changes in Network configuration in Sikkim hydro Complex with augmentation of lines | Teesta-III: PSS Tuned on 21 Oct. 2019.<br><br>Dikchu: To be done on 22 Nov. 2019 after necessary shutdown approval.<br><br>Jorethang: Jan. 2020<br>Chujachen and Tashiding: Feb 2020<br>Teesta-V: March 2020 |
| MPL Plant | Due to Change in Network configuration during to bus splitting at Maithon. | MPL Unit-2: 14th June-2019 during AOH.<br>MPL Unit-1: Planned during AOH in Jan-2020. |
| APNRL Plant | Oscillation with Low Damping during transient and switching observed at the plant. | APNRL will Tune in Nov 2019 as per 162nd OCC |
| Farakka NTPC Power Plant | With Augmentation of new lines and changes in network configuration with upcoming bus split at Kahalgaon. | PSS Tuning of Unit 6 has been done.<br>Other units are planned in December 2019 |
| NPJC/BRBCL/KBUNL NTPC Power Plant | The new units have been commissioned however there are | BRBCL has submitted PSS tuning details only for Unit |

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|---|---|---|
| | no details on the PSS tuning activity in line with Indian Electricity Grid Code and CEA Grid Connectivity Standards | 2.<br><br>For other units' details to be submitted by NTPC. |
| GMR | Was done in 2013 and retuning is required with change in the network at Angul. | During overhauling in Nov 2019 |
| Sterlite 4 X 600 MW | Due to network changes. | Plan not yet submitted (Orissa SLDC) |

Members may update.

## Deliberation in the TCC Meeting

*Concerned generating stations updated the status as mentioned below:*

| **Generating Power Plant** | **Observation** | **Status of Action Plan to be informed to OCC** |
|---|---|---|
| All Units of DVC Generating Plant | Oscillation Observed at DSTPS on 24th April 2019 and other Oscillation events in the past. | DVC gave consolidated plan for its units in 162nd OCC |
| All Units of OPGC and OHPC, Sterlite | PSS are tuned long back and in many units PSS have not been tuned but are in service. | OPGC units—Feb 2020<br>OHPC informed that they will submit the plan in January 2020. |
| Sikkim Hydro Complex (Teesta-III, Teesta-V, Chujachen, Dikchu, Tashiding, Jorethang) | In view of Oscillation during the 16th April 2019 events and changes in Network configuration in Sikkim hydro Complex with augmentation of lines | Teesta-III: PSS Tuned on 21 Oct. 2019.<br><br>Dikchu: Done on 23rd Nov. 2019.<br><br>Jorethang: Jan. 2020<br>Chujachen and Tashiding: Feb 2020<br>Teesta-V: March 2020 |
| MPL Plant | Due to Change in Network configuration during to bus splitting at Maithon. | MPL Unit-2: 14th June-2019 during AOH.<br>MPL Unit-1: Planned during AOH in Jan-2020. |
| APNRL Plant | Oscillation with Low Damping during transient and switching observed at the plant. | APNRL attempted in Nov 2019 but not successful. |
| Farakka NTPC Power Plant | With Augmentation of new lines and changes in network configuration with upcoming bus split at Kahalgaon. | PSS Tuning of Unit 4, 5 and 6 has been done.<br>Unit 1&2 are planned in December 2019. Unit 3 after overhauling. |
| NPGC/BRBCL/KBUNL NTPC Power Plant | The new units have been commissioned however there are no details on the PSS tuning | NPGC: December 2019<br>BRBCL: Unit 2 completed. |

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|---|---|---|
| | activity in line with Indian Electricity Grid Code and CEA Grid Connectivity Standards | |
| GMR | Was done in 2013 and retuning is required with change in the network at Angul. | During overhauling in Dec 2020 |
| Sterlite 4 X 600 MW | Due to network changes. | Plan not yet submitted (Orissa SLDC) |

*TCC advised all the concerned generating stations to take appropriate action to carry out PSS tuning of their units as per the schedule and submit the report to ERPC and ERLDC.*

| **ITEM NO. B6:** | **Automatic Under Frequency Load Shedding (AUFLS) Scheme** |
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In the 2nd meeting of NPC held on 16th July 2013, the following AUFLS scheme with 4 stages of frequency viz. 49.2 Hz, 49.0 Hz, 48.8 Hz & 48.6 Hz had been decided to implement in all the regions:

| AUFLS | Frequency (Hz) | Load relief in MW | | | | | |
|---|---|---|---|---|---|---|---|
| | | NR | WR | SR * | ER | NER | Total |
| Stage-I | **49.2** | 2160 | 2060 | 2350 | 820 | 100 | 7490 |
| Stage-II | **49.0** | 2170 | 2070 | 2360 | 830 | 100 | 7530 |
| Stage-III | **48.8** | 2190 | 2080 | 2390 | 830 | 100 | 7590 |
| Stage-IV | **48.6** | 2200 | 2100 | 2400 | 840 | 100 | 7640 |
| | **Total (MW)** | **8720** | **8310** | **9500** | **3320** | **400** | **30250** |

*SR grid not integrated with NEW grid at that point of time.

The scheme had been implemented throughout the country.

In 7th NPC meeting held on 08thSeptember 2017, it was agreed that there is need for review of the quantum of load shedding. The RPCs were to deliberate on additional slabs of frequency as well as raising the set frequency for UFR operation and inform the outcome to NPC.

In 8thNPC meeting, held on 30.11.2018, members agreed for the AUFLS scheme with 4 stages and raising the frequency by 0.2 Hz viz. 49.4, 49.2, 49.0 & 48.8 Hz. It was further decided that the quantum for AUFLS would be reworked by NPC Secretariat considering the requirement of load shedding to increase the frequency to 50 Hz in each stage of AUFLS operation.

In 9th NPC meeting held on 22.11.2019, it was decided to implement the AUFLS scheme with 4 stages and raising the frequency by 0.2 Hz viz. 49.4, 49.2, 49.0 & 48.8 Hz by keeping the quantum for AUFLS same as decided in 2nd NPC Meeting. It was also decided that a committee with all RPCs and NLDC would study and review the required quantum for each slab of AUFLS and submit a report to NPC. Minutes of the meeting are awaited.

The total load quantum for ER constituents is given below:

| Control Area | Stage –I (49.4 Hz) (MW) | Stage –II (49.2 Hz) (MW) | Stage–III (49.0Hz) (MW) | Stage–IV (48.8Hz) (MW) | Total Relief by Control Area |
|---|---|---|---|---|---|
| **Bihar** | 98 | 99 | 99 | 101 | 397 |
| **Jharkhand** | 61 | 62 | 61 | 62 | 246 |
| **DVC** | 134 | 135.5 | 136 | 137 | 542.5 |
| **Odisha** | 181.5 | 183.5 | 184 | 186 | 735 |
| **WB & CESC** | 345.5 | 350 | 350 | 354 | 1399.5 |
| **Total** | **820** | **830** | **830** | **840** | **3320** |

TCC may note and advise implementation of the revised AUFLS scheme.

## Deliberation in the TCC Meeting

*TCC advised all the constituents to implement the revised AUFLS scheme as per the NPC decision within a month and submit a report to ERPC Secretariat and ERLDC.*

*TCC decided to review the implementation status in the next OCC Meeting.*

| ITEM NO. B7: | Implementation of Automatic Demand Management Scheme (ADMS) |
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The latest status along with proposed logic as follows:

| Sl No | State/Utility | Logic for ADMS operation | Implementation status/target | Proposed logic (if different from under implementation logic) |
|---|---|---|---|---|
| 1 | West Bengal | F <49.7 AND deviation > 12 % or 150 MW | Implemented on **25.11.16** | F <49.9 AND deviation > 12 % or 150 MW |
| 2 | DVC | F <49.7 AND deviation > 12 % or 150 MW | Implemented on **17.06.2016** | |
| 3 | Jharkhand | 1. System Frequency < 49.9 Hz AND deviation > 12 % or 25 MW<br>2. System Frequency < 49.9 Hz AND deviation > 12 % or 50 MW<br>3. System Frequency < 49.9 Hz AND deviation > 12 % or 75 MW | In service from **21st August 2019.** | Condition 1: Block I feeders will be selected for load shedding<br>Condition 2: Block I & II feeders will be selected for load shedding<br>Condition 3: Block I, II & III feeders will be selected for load shedding |
| 4 | Bihar | F <49.7 AND deviation > 12 % or 150 MW | *Installation of ADMS had been completed and the* | F <49.9 AND deviation > 12 % or 150 MW |

| | | | | |
|---|---|---|---|---|
| | | | *testing would be done by end of November 2019.* | |
| 5 | Odisha | 1. System Frequency < 49.9 Hz<br>2. Odisha over-drawl > 150 MW<br>3. DISCOM over-drawl > (40 MW) | 10 Months<br>*Tender for the work has been floated.* | Logic 2 and 3 is AND or OR, in case it is AND then ADMS may not operated when discom are in schedule but GRIDCO is overdrawing due to less generation at state embedded generators |
| 6. | Sikkim | | | Sikkim informed that they have submitted a proposal to PSDF Committee for installation of OPGW cables which is under approval stage. Sikkim added that ADMS scheme would be implemented after installation of OPGW. |

Bihar, Odisha and Sikkim may update.

## Deliberation in the TCC Meeting

*Bihar informed that the testing of ADMS would be done by end of December 2019.*

*Odisha informed that ADMS would be implemented by May 2020.*

*Sikkim informed that installation of OPGW is in progress, ADMS would be implemented after the installation of OPGW & renovation of sub-station tentatively by 2020.*

*TCC advised Odisha and Sikkim to implement ADMS at the earliest.*

*After detailed deliberation, TCC opined that uniform logic and settings are to be implemented for all the states. TCC advised to discuss the issue in next OCC Meeting to formulate uniform logic and setting of ADMS.*

| **ITEM NO. B8:** | **Reconductoring work of 400 kV Rangpo-Binaguri D/C lines** |
|---|---|

In 162nd OCC, Powergrid explained that reconductoring work of both 400 kV Rangpo-Binaguri D/C lines would take 1 year time approximately and they are ready to take shutdown of both the circuits from 01.11.2019.

ED, ERLDC advised Powergrid to complete the reconductoring work of one circuit by end of February 2020. He added that after February 2020, shutdown of both lines is not possible in view of the likelihood of rise in hydro generation in Sikkim.

MS, ERPC submitted that there is a need for reviewing the progress of the work by field visit. In this regard a Committee shall be formed comprising the members from ERPC Secretariat, WBSETCL, PGCIL, TVTPL etc. The Committee will visit the site and check the preparedness of the work. Also, periodic inspection will be done to assess the progress of the work.

*In 163rd OCC, Powergrid updated that the work had been started from 1st November 2019, reconductoring of 4 km of both the circuits out of 110 km line had been completed (3 km in West Bengal and 1 km in Sikkim).*

*OCC advised Powergrid to submit a detail schedule to ERPC and ERLDC.*

Powergrid may submit the schedule and update the latest status of progress.

## Deliberation in the TCC Meeting

*Powergrid updated that reconductoring of 11 km of both the circuits out of 110 km line had been completed (9.3 km in West Bengal and 1.7 km in Sikkim).*

*Powergrid further informed that they are facing severe ROW issues in Sikkim and requested Power and Energy Department, Govt. of Sikkim to support in resolving the ROW issues.*

*Powergrid added that they are putting all the efforts to complete the reconductoring work of both 400 kV Rangpo-Binaguri D/C lines by April 2020.*

*TCC advised Powergrid to complete the work as per the schedule so that evacuation of hydro power from Sikkim would not get affected in the coming monsoon season.*

*TCC requested Sikkim to help Powergrid in resolving the ROW issues for smooth completion of the reconductoring work.*

*ERPC Secretariat informed that a Committee with members from ERPC Secretariat, WBSETCL, PGCIL, TVPTL has been formed to monitor the progress of the work and the Committee would visit the site in every two months.*

*PGCIL was requested to furnish the status of progress to ERPC Secretariat every month for discussion in the OCC meeting.*

| **ITEM NO. B9:** | **Compensation of MPL station on account of SCED** |
|---|---|

Maithon Power Limited (MPL) has been included in the RRAS & SCED Scheme w.e.f 12th June 2019. Majority of time MPL is getting SCED down schedule only. Due to part load operation of the station, the Compensation has been given to the station due to degradation of heat rate of the station.

In view of the above, ERPC has published the compensation statement for the months June 2019 & July 2019 vide No. ERPC/COM/REA/2019/6885-6897 dated 10.10.2019, where in it was observed that, in the calculation of compensation the reduction of load of MPL due to part load operation on account of SCED has not been considered for these months.

*The issue was discussed in 41st CCM, wherein MPL representative explained the issue of not getting full compensation for the station after participation in SCED w.e.f. 12th June, 2019. He further added that the compensation on account of SCED was given but the compensation due to under requisition of beneficiaries was not considered.*

*It was deliberated in the meeting that the share allocation of MPL station is based on fixed LTA quantum (in MW) to beneficiaries unlike other central sector generating stations which are in percentage basis based on the allocation done by Ministry of Power, Govt. of India. Hence, as per prevailing regulations the compensation cannot be calculated on percentage basis for the stations whose share allocation is in MW.*

*Further, the compensation for central generating station would be given if the average unit loading is less than 85% either due to under requisition of beneficiaries or due to net SCED down schedule.*

*MPL was advised to sort out the issue with the beneficiaries. In case the issue remains unresolved, MPL is at liberty to file a petition before CERC to get clarification in the methodology of compensation for IPP stations.*

*However, after discussion it was decided to refer the issue to upcoming TCC for further deliberation.*

TCC may discuss.

## Deliberation in the TCC Meeting

*MPL submitted that MPL for all practical purpose should be treated at par with CGS and therefore full compensation should be allowed to MPL instead of part compensation due to SCED only which is given at present.*

*After detailed deliberation no consensus could be arrived at on this issue. TCC suggested that MPL may file a petition before CERC for clarification regarding the issue.*

*The issue has been referred to ERPC for further deliberation.*

| **ITEM NO. B10:** | **Testing and Calibration of Special type Energy Meter** |
|---|---|

Availability Based Tariff, Interface Meters (Special Energy Meters) have been installed by CTU at the points of interconnection with Inter-State Transmission System (ISTS) for energy accounting and billing. As per Central Electricity Authority (CEA) notification no. 502/70/CEA/DP & D dated 17.03.2006, all interface meters shall have to be tested at least once in five years using NABL accredited mobile laboratory or at any accredited laboratory. In this regard Clause 18(1) (b) of CEA (Installation and Operation of Meters) Regulations, 2006 state that:

Quote……

*All interface meters shall be tested at least once in five years. These meters shall also be tested whenever the energy and other quantities recorded by the meter are abnormal or inconsistent with electrically adjacent meters. Whenever there is unreasonable difference between the quantity recorded by interface meter and the corresponding value monitored at the billing center via communication network, the communication system and terminal equipment shall be tested and rectified. The meters may be tested using NABL accredited mobile laboratory or at any accredited laboratory and recalibrated if required at manufacturer's works.*

……Unquote

Presently, POWERGRID have installed about 1310 nos. of Special Energy meters of 0.2 class accuracy in 765/400/220/132kV substations at about 189nos of locations in Eastern Region covering states of Orissa, West Bengal, Sikkim, Bihar and Jharkhand.

Out of 1310 no of meters installed in ER, around 768 meters (all L&T make) at 157 locations are more than five years old. Moreover, Testing and calibration of around 307 Interface meters in ER was last carried out in year 2013 i.e. more than 6 years ago. A list of 140 no of meters which are severely drifted in time is already communicated to POWERGRID for replacement and accordingly, replacement work has started. In view of the above, remaining 628 meters may be tested and calibrated as per the provision of aforesaid regulation. Further Time correction of meters of drifted meters may also be done (under testing and calibration).

In 162nd OCC, Powergrid submitted that out of 768 L&T meters, 140 would be removed from service by November 2019. Testing will be done for the remaining meters and the detailed plan for the same including cost of testing would be submitted in the upcoming OCC. Powergrid clarified that in case of any abnormal results found during the testing, those L&T meters would be replaced by Genus meters and the defective L&T meters would be sent for calibration.

*In 163rd OCC Meeting held on 15.11.19, POWERGRID informed that they received the offer of 68 Lakhs (approx.) for testing and calibration of said 628 L&T meters.*

OCC referred the issue to Commercial Sub-Committee for concurrence.

*In 41st CCM, POWERGRID representative informed that the testing and calibration of 628 L&T meters is required as per the provisions of existing metering regulation since they were tested and calibrated a long back. Further, if any, time correction is necessary that would also be done.*

*However, ERPC and ERLDC opined that CEA is coming up with new metering regulation along with technical specifications (5 min & 15 min provision) of meters for future requirement of grid. Since the testing and calibration of the proposed meters has cost implication, it was agreed that the same may kept in abeyance till issuance of further guidelines or regulations by competent authority.*

*The Matter was referred to forthcoming TCC/ERPC meeting.*

TCC may discuss.

## Deliberation in the TCC Meeting

*After deliberation, TCC decided the followings:*

- *50 % of total old L&T Meters shall be tested and calibrated.*
- *ERLDC shall prepare the priority list for SEMs to be tested which are old and highly time drifted.*
- *Powergrid shall carry out testing and calibration for the old L&T meters as per the list.*

| ITEM NO. B11: | Replacement of GPRS communication with Optical Fiber for AMR |
|---|---|

In ER, approximately 80% meters are connected through Automated Meter Reading (AMR). At present the communication system used for data transfer from each location is GPRS. It has been observed that many locations are not communicating with AMR system due to poor/no GPRS signal. Many substations have their own optical fiber which is also used for the LAN network of respective stations. TCS has successfully connected 02 locations (Subhasgram-PG and Binaguri-PG) in ER-II with PGCIL intranet and these two locations are smoothly reporting to AMR system after connecting with PGCIL LAN. The proposed network will not only provide better communication but also reduce the cost of GSM.

In 39th CCM, Powergrid requested other utilities to share their Fibre details to explore possibilities of using their own optical fiber network, wherever it is available, for communicating with AMR for smooth functioning of AMR.

In 156th OCC, Powergrid informed that optical fiber for AMR had been implemented at 35 locations and rest of the locations would be completed by May 2019.

In 40th CCM, POWERGRID requests all the constituents to share the available optical fibre network connectivity for further configuration to Optical connectivity. This will also help to reduce the maintenance cost of AMR, as recurring cost towards SIM cards may be avoided in that case.

POWERGRID also informed that optical fiber for AMR has been implemented for 38 locations out of 40 and rest would be completed by August'19. However, M/s TCS has confirmed that total 35 locations out of 40 was connected with LAN and the status is enclosed in **Annexure-B11.**

*In 41st CCM, BSPTCL representative informed the required details of optical fibre network connectivity have been shared to POWERGRID for configuration AMR Optical connectivity.*

*POWERGRID informed that they have not received any response from other constituents on this matter. All the constituents were advised to explore the possibility of Optical fibre network connectivity instead of GPRS for communication AMR system as this will significantly enhance the reliability of the system.*

*The matter was referred to forthcoming TCC meeting for guidance.*

TCC may guide.

## Deliberation in the TCC Meeting

*TCC advised all the other constituents to share the details of optical fibre in TeST Meeting scheduled to be held on 20th December 2019, so that Powergrid could carry out the configuration of AMR connectivity.*

| ITEM NO. B12: | Procurement of new SEMs |
|---|---|

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

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

In 145th OCC, PGCIL informed that 300 meters of 2nd lot has been supplied. Time drifted meters are being replaced by Genus meters phase wise.

In 38th CCM, PGCIL informed that remaining 364 nos. of meters has been delivered.

In 40th CCM, POWERGRID requested ERLDC to provide the list of required anticipated new connections and they will place the cost estimate accordingly.

The list of future requirements of meter details regarding upcoming Generation project/ Sub-station may be furnished to ERLDC.

*In 41st CCM, PGCIL provided the list of upcoming project details for one year. Based on the data provided by PGCIL (ER-1, ER-2 and Odisha Project) total 202 number of SEMs are required. PGCIL also confirmed that present stock is approximately 210 numbers. The details are attached in* ***Annexure-B12.***

*The Matter was referred to forthcoming TCC/ERPC meeting.*

TCC may discuss.

## Deliberation in the TCC Meeting

*After detailed deliberation, TCC decided the following:*

- *Powergrid shall procure 300 meters in first lot.*
- *Further requirement of new SEMs shall be reviewed periodically in lower fora of ERPC.*

| ITEM NO. B13: | Outage of important transmission lines |
|---|---|

**1. 400 kV Kishenganj-Patna D/C lines:**

400 kV D/C Kishenganj – Patna line has been out since 02.09.2018 due to tower collapse which occurred as a result of change of course of Ganga river. The circuit – 2 has been restored on 16.01.2019 on ERS but the final restoration of D/C line has not yet been done. In different meetings of ERPC, PGCIL has highlighted the challenges being faced by them in normalising the lines.

In 162nd OCC, Powergrid informed that one circuit of 400 kV Kishenganj-Patna D/C line would be restored through ERS by December 2019. Powergrid added that permanent restoration of both the circuits of 400 kV Kishenganj-Patna D/C lines would be completed by March 2020.

The Committee constituted for analyzing the major outages of ISTS elements of ERhad made extensive deliberation on this issue in its meeting held on 13.02.2019 and 24.10.2019. The Committee also visited the affected location of tower collapse to assess the actual site condition and volume of work involved etc.

*During the 3rd meeting of Committee & in 163rd OCC, Powergrid informed that both circuits of 400 kV Kishenganj-Patna D/C line would be restored through ERS by* ***December 2019.****Powergrid added that permanent restoration of both the circuits of 400 kV Kishenganj-Patna D/C lines would be completed by* ***March 2020.***

Powergrid may update.

## Deliberation in the TCC Meeting

*Powergrid informed that both circuits of 400 kV Kishenganj-Patna D/C line would be restored through ERS by* ***December 2019.*** *Powergrid added that permanent restoration of both the circuits of 400 kV Kishenganj-Patna D/C lines would be completed by* ***March 2020.***

**2. 400 kV Purnea-Biharsharif D/c lines:**

400kV Purnea-Biharsharif D/C line was out of service from 10/08/18 due to the change of course of the river Ganges and heavy velocity of flow of water which leads to tower collapse. The lines have not yet been restored. In different meetings of ERPC, ENICL had highlighted the challenges being faced by them in normalising the lines.

In 161st OCC, ENCIL informed that they were planning for the permanent restoration of the line using special high-performance conductor (HPC with ACCC conductor) between tower AP46/9A and AP47/1. 400 kV Purnea-Biharsharif D/c would be restored by end of November 2019.

The Committee constituted for analyzing the major outages of ISTS elements of ERhad made extensive deliberation on this issue in its meeting held on 13.02.2019 and 24.10.2019, The Committee also visited the affected location of tower collapse to assess the actual site condition and volume of work involved etc.

During the 3rd meeting of Committee and in 163rd OCC, ENICL informed that 400 kV Purnea-Biharshariff D/c would be restored by 30th November 2019.

*Further ENICL vide mail dated 02.12.2019 intimated that400 kV Purnea-Biharshariff D/c would be restored by* ***15th December 2019.***

TCC may note.

## Deliberation in the TCC Meeting

*TCC advised MS, ERPC to take up with ENICL for early restoration of the line.*

**3. 400 kV Barh-Motihari D/C and 400 kV Motihari-Gorakhpur D/C lines**

In 161st OCC, ERLDC informed that 400 KV Barh – Motihari (DMTCL) – D/C were out since 04/09/2019 on tower collapse at LOC 26/0 and 400 KV Motihari – Gorakhpur(DMTCL) –D/C were out since 13/08/2019 on tower collapse at LOC 27/0.

After detailed deliberation, it was emerged that one of the circuits of 400 KV Barh–Motihari(DMTCL) –D/C line could be restored as 400 KV Barh–Motihari(DMTCL) S/C line and other circuit could be directly connected to Gorakhpur to operate as 400 KV Barh-Gorakhpur S/C linekeeping one circuit of 400 kV Motihari – Gorakhpur line under outage, till its tower restoration, so that Barh STPS generation could be evacuated safely.

Subsequently it was reported that on 7th Oct 2019 tower no 25/5 of Motihari-Barh got collapsed due to which temporary restoration of 400kV Barh-Motihari line as earlier planned, now seems to be in-feasible.

Under the circumstances POWERGRID is requested to furnish a detailed plan for restoration of 400kV Barh – Gorakhpur D/C (by passing the LILO point at Motihari) on urgent basis to maintain reliability of ER – NR inter regional corridor and safe evacuation of Barh STPS power.

The Committee constituted for analyzing the major outages of ISTS elements of ER had made extensive deliberation on this issue in its 3rd meeting held on 24.10.2019. The Committee also consideredto visit the affected location of tower collapse in December, 2019 to assess the actual site condition and volume of work involved etc.

*In 163rd OCC, DMTCL informed that the restoration work would start from 15th December 2019 after completion of approach road for carrying the construction material and mobilization of gangs.*

*DMTCL added that restoration of 400 kV Barh-Motihari D/C line would take five months and restoration of 400 kV Motihari -Gorahkpur D/C line would take six months.*

*OCC advised Powergrid to make direct connectivity i.e. 400 kV Barh- Gorahkpur D/C line, till restoration of the LILO portion of Motihari.*

*Powergrid agreed to make direct connectivity with Twin Moose conductor but DMTCL has to do the necessary destringing of the conductor of the LILO section with the original line to enable PGCIL to establish the direct connectivity.*

*OCC advised DMTCL to complete the destringing work at the earliest so that Powergrid could start the bypass arrangement.*

*Bihar informed that they are facing severe power shortage at Motihari due to outage of above lines and requested DMTCL to accelerate the restoration work. Bihar requested DMTCL to complete the restoration work before summer.*

*OCC referred the issue to 42nd TCC Meeting.*

*OCC advised DMTCL to attend 42nd TCC Meeting to be held at Port Blair on 12th December 2019 to ensure complete restoration work before summer.*

DMTCL and Powergrid may update.

## Deliberation in the TCC Meeting

*TCC suggested that MS, ERPC should convene a separate meeting at ERPC secretariat for addressing the issues regarding early restoration of supply at Motihari.*

| ITEM NO. B14: | Strengthening of Transmission Tower Near to River basin to avoid Frequent Tower Collapse |
|---|---|

Frequent Tower Collapses have been explained in the Eastern Region due to change in river course of Gandak and Kosi rivers. This has endangered the reliability of power supply to Bihar as well as to the region as a whole. It has been observed that the towers which have collapsed during most of the tower collapse events due to change in river course were not of pile type foundation recommended for river basin areas.

Reports of the Standing Committee of experts on failure of EHV transmission line towers (October 2016 – March 2018) recommended the following for such transmission lines:

*Pile type foundation may be considered for towers in flood prone area based on soil investigation report and latest high flood data. In case of damage of foundation of towers, the foundation design is required to be examined. The material test report of failed towers should be examined to ascertain the quality of the material. Providing proper revetment & use of geo-synthetic material in foundation, concrete encasing & painting of stub in water logging areas etc. may also be considered, wherever required.*

In view of the above, all transmission licensees whose lines are prone to flooding may immediately take above remedial action as suggested by the committee. It is suggested by ERLDC to have all the towers in the flood-prone zone on pile foundation along with nearby tower should be provided with revetment to avoid soil erosion.

*In 161stOCC, members appreciated the ERLDC proposal.*

*Member Secretary, ERPC informed that investment made in strengthening of towers should be recovered through tariff. Clear guidelines need to be formulated by the competent authorities for this. It was decided by OCC to raise this issue in the TCC and ERPC meetings so that a definite proposal could be forwarded to CEA and CERC.*

*OCC advised POWERGRID, ENICL, DMTCL, ATL and other ISTS licensees whose transmission line towers are prone to be affected by change of river course and flooding of river banks, should furnish a detail list of such tower locations together with tower types and tentative cost for constructing pile foundations for the towers to ERPC and ERLDC.*

ISTS licensees may update.

TCC may discuss.

## Deliberation in the TCC Meeting

*TCC advised POWERGRID, ENICL, DMTCL, ATL and other ISTS licensees whose transmission line towers are prone to be affected by change of river course and flooding of river banks, should furnish a detail list of such tower locations along with tower types for constructing pile foundations for the towers to ERPC and ERLDC.*

*Bihar emphasized that the additional cost incurred in this should be absorbed by the transmission licensees themselves and not to be passed on to the utilities.*

| | |
|---|---|
| **ITEM NO. B15:** | **'Upgradation of SCADA/RTUs/SAS in the Central sector stations and strengthening of OPGW network in Eastern Region' Project** |

In 39th ERPC Meeting, it was decided that,

i) ERPC approved the proposal of Power Grid for replacement of the old RTUs in the Eastern Region for reporting of RTU / SAS to backup control centres at an estimated cost of Rs. 88.57 Crore with an implementation time of 36 months.
ii) Power Grid shall place a proposal before PSDF Committee for financing the above project from PSDF.
iii) In case of non- availability of required funding from PSDF, the project shall be implemented by Power Grid and the cost shall be recovered by Power Grid through tariff.

Accordingly, POWERGRID applied for financing of the above project through PSDF vide letter no C/LD&C/PSDF/19-20/1 dated 22.07.2019. Subsequently, NLDC (nodal agency for PSDF) has intimated vide letter ref. NLDC-PSDF/TESG-51st meeting/2019-20/143 dated 18.09.2019 regarding non-availability of PSDF Fund for the above project. Hence, **it may be kindly recorded** that POWERGRID has already initiated the Placement of LOA and execution of the project through tariff basis.

TCC may note.

## Deliberation in the TCC Meeting

*TCC noted.*

| | |
|---|---|
| **ITEM NO. B16:** | **Up gradation proposal of CTS 220/132 kV Sub-stations (Malda, Dalkhola, Siliguri &Birpara) under ER-II** |

In all four Substations of Chukha Transmission System (CTS), control & protection system was supplied by M/S. UE, which is completely obsolete from market and at present there is no support or spare available for the same make relay. As such it is very much prudent to change the entire control & protection panels to increase the reliability.

All CTS S/S has crossed useful life of 25 Years (All above mentioned S/S are commissioned in the year 1986-87) as per CERC norms. Due to ageing many tit-bit items are replaced time and again but as a considerable time has crossed a major revamp are required, mainly in C&R panels due to age old technology, for all above stations for maintaining reliability in the system. Accordingly, a detailed investigation and probabilities are checked by internal teams of POWERGRID involving engineering and other concerned departments.

For Birpara& Siliguri, already 132 KV systems are converted to GIS and no augmentation is required. However, for both stations, although outdoor equipment's are changed in different up gradation scheme, original C&R panels are yet to be replaced. For both stations distributed control (Kiosk based control) / De-centralized SCADA envisaged, without changing outdoor equipment's. Cost involvement for both stations in this method will be approx. 5.0 Crore each.

For Dalkhola, as it is switching station, and existing control room has got enough place for housing new panels, centralised SCADA with only new relay panels are envisaged. However, some old equipment's also required to be replaced like CB, Isolators etc. Cost involvement for Dalkhola up gradation will be approx. 10.5 Crore.

For Malda S/S, 132 KV system is already approved for conversion in GIS. However, the existing switching scheme for 400kV & 220kV Switchyards is Double Main & Transfer Bus arrangement (DMT type) and continuously in operations since 1986. Although the present practice is to have one & half CB scheme but due to space constraints, DMT scheme is in place and it is very known factor that maintenance of Pantograph isolators are tedious and also require bus shut down for any maintenance. Again, any bus bar protection operation in DMT will result element outage which may affect reliable operation.

Accordingly there are 03 probable solutions are envisaged for Malda S/S:-

A. Complete conversion of existing 400 KV & 220 KV AIS to GIS with conversion of DMT scheme to 1½ CB (At 400 KV)- Cost involvement will be around 80.0 Crores. This option will enable space for installation of another 400/220 KV ICT & Lines (02 more). Also it will increase reliability as per connectivity.
B. Conversion of 400 KV AIS to GIS with conversion of DMT scheme to 1½ CB & implementing distributed control for 220 KV- Cost involvements will be around 64.0 Crores.
C. Complete conversion of existing 400 KV & 220 KV AIS to Distributed Control AIS system (De-centralised SCADA)- In this method scheme will be remain DMT for 400 KV and only existing C&R panels will be replaced by distributed control (Kiosk method). Cost for this method will be around 19.5 Crores.

As this all four S/S are quite important in terms of Eastern Grid & existing C&R panels and schemes are really old, those require revamp.

*In 163rd OCC, Powergrid informed that the substations were commissioned in around 1986 and needed to be upgraded.*

*Powergrid ER-I also informed that some old substation in ER-I also needed to be upgraded.*

*Member Secretary, ERPC advised Powergrid to send the details to ERPC and advised to give a detailed presentation in 42nd TCC Meeting for detailed deliberation.*

*OCC referred the issue to 42nd TCC Meeting for further deliberation.*

TCC may discuss.

## Deliberation in the TCC Meeting

*Agenda withdrawn by Powergrid.*

| ITEM NO. B17: | Issue of trial operation/completion certificate by ERLDC for Alipurduar-Punasangchu OPGW link |
|---|---|

The OPGW work in Alipuduar-Punasangchu link (64 Km) alogwith communication equipment was completed for India Portion on 28.03.2019. POWERGRID requested ERLDC to issue Trial Operation Certificate/Completion certificate for India Portion of Alipurduar-Punasangchu link. ERLDC vide their letter dtd 24.09.2019 intimated that the certificate can be issued after transfer of data & voice through this link. But the work is completed by POWERGRID for Indian Portion (with transmission line) and the link could not be established due to pending work in Bhutan side. Accordingly, it is requested to issue the trail operation/completion certificate by ERLDC for Alipurduar-Punasangchu link (India Portion).

*In 163rd OCC, it was opined that the issue is genuine and the trial operation certificate may be issued in this case.*

*ERLDC informed that since it is an international connectivity the trial operation certificate shall be given by NLDC. However, ERLDC agreed to pursue with NLDC.*

*In 2nd TeST meeting held on 26.11.2019 at ERPC, Kolkata, NLDC informed that purpose of laying OPGW on Alipuduar-Punasangchu link (64 Km) along with communication equipment (India Portion) is not fulfilled until OPGW link up to Punasangchu, Bhutan is ready. So, as per CERC regulation, there is no provision to give trial operation certificate considering the present scenario.*

*Powergrid informed that they should receive the OPGW certificate in the same way as received for transmission line.*

*The issue was referred to 42ndTCC/ERPC meeting for further discussion.*

TCC may discuss.

## Deliberation in the TCC Meeting

*The issue was discussed in details in the TCC meeting and no consensus was arrived at.*

*The issue has been referred to ERPC.*

| ITEM NO. B18: | Short closing of URTDSM Project installed in Eastern Region |
|---|---|

Under URTDSM project, 12 nos. PMUs could not be commissioned due to various reason as mentioned below:

a. Bankruptcy/admin. issue : 2 PMUs ( IPPs - Monnet &IndBharat)

b. Non-availability of communication link : 8 PMUs ( GMR IPP & JITPL IPP)
: 2 PMUs at Tenughat

c. Substation not ready : 3 PMUs at Patratu

In 1st TeST meeting held on 24.10.2019, the issue was discussed and POWERGRID requested for short-closing of the pending erection/commissioning activities of PMU in above sites.

As there is no change in status even after long period of waiting, pending completion of above, POWERGRID may be given go-ahead for submitting tariff petition based on the supply and works carried out in actual for the above-mentioned 12 nos. PMUs at 06 nos. sites.

In 163rdOCC meeting, OCC advised to keep the PMUs as spare wherever it is accessible.

This issue was further deliberated in the 2ndTeST meeting held on 26.11.209 at ERPC, Kolkata.

*Powergrid requested for short-closing of the pending erection/commissioning activities of PMUs at Monnet & Ind Bharat due to site issue. Powergrid informed that GE had completed the necessary connections at GMR, JITPL &Tenughat stations but due to non-availability of the OPGW communication links, PMU data from these stations were yet to be made available. POWERGRID further requested to use 3 PMUs at Patratu station as spare as per the decision of 163rd OCC meeting.*

*ERPC Secretariat suggested that considering the site issue at Monnet & Ind Bharat, short closing might be allowed but Powergrid needed to complete the PMU work including its data transfer from GMR, JITPL & Tenughat.*

*It was decided to take the above matter to the next TCC/ERPC meeting for further discussion.*

TCC may approve.

## Deliberation in the TCC Meeting

*Powergrid informed that integration of PMUs at Tenughat would be completed by December 2019 and the same for GMR and JITPL would be completed by June 2020.*

*After detailed deliberation, TCC decided the followings:*

- *Short closing of URTDSM project shall be allowed only after integration of PMUs including its data transfer at GMR, JITPL & Tenughat.*
- *Since Patratu substation is not yet ready, 3 nos. of PMUs of Patratu station shall be kept as spare.*
- *2 nos. of PMUs meant for Monnet and Ind Bharat can't be commissioned due to bankruptcy issue.*

*Referred to ERPC for concurrence.*

| ITEM NO. B19: | Operationalization of 400 kV Durgapur Bus Splitting Scheme |
|---|---|

In 41st ERPC Meeting held on 27th August 2019, it was decided that:

i. The split bus scheme of Durgapur PG shall be put in operation.
ii. DVC shall approach Standing Committee for necessary approval for shifting of 315MVA 400/220 kV 3rd ICT to some other location.

Regarding operationalization of 3rd ICT at Durgapur, it was decided that the 3rd ICT shall be kept in standby mode (charged from one end) for a period of fifteen (15) days. ERLDC, West Bengal & DVC shall present their observations in the next OCC meeting scheduled to be held on 20.09.2019 wherein OCC forum shall decide the next course of action. However, during the intervening period, on real time basis, if the necessity arises for the safety, security & stability of the grid, ERLDC shall take action in operationalizing the 3rd ICT.

Accordingly, ERLDC commenced the split bus operation at Durgapur PG with 3rd 315 MVA, 400/220kV ICT in standby mode.

Thereafter, ERLDC vide latter dated 10th September 2019 and mail dated 11th September 2019 informed that in view of sustained high loading on other two 400/220kV ICTs at Durgapur PG, 3rd 315 MVA, 400/220kV ICT at Durgapur PG was taken into service.

In 161st OCC, DVC informed that they had already submitted the proposal to standing Committee for shifting of 3rd ICT at Durgapur (PG) to some other location.

ERLDC informed that hotspot at 220kV Jumper of 400/220kV ICT-II at Durgapur PG was reported on 4th September due to high loading and they had taken 3rd ICT into service keeping 2nd ICT as stand by. One circuit of 220kV Waria-Bidhannagar D/C line was taken out of service to control the power flow in 220kV Durgapur (PG)-Parulia (DVC) D/C line. ERLDC added that, in view of sustained high loading on 3rd 400/220kV ICT at Durgapur PG, 2nd 315 MVA, 400/220kV ICT at Durgapur PG was also taken into service on 10th September 2019.

ERLDC stressed that all the ICTs at Durgapur PG should be in service for the safety and reliability of the Grid.

DVC informed that loading on 1st 315 MVA, 400/220kV ICT at Durgapur PG is very low (50 MW approx..), sometimes reverse power flow was also observed. DVC suggested that 1st 315 MVA, 400/220kV ICT at Durgapur PG be taken out of service.

After detailed deliberation, the following decisions were taken in the meeting:

- As suggested by ERLDC, all the ICTs at Durgapur PG shall be kept in service to meet the Puja demand.
- However, ERLDC shall take necessary decision on real time basis keeping in view the security and reliability of the grid.
- DVC shall carry out a detailed study on power flow pattern through the ICTs with present and future network condition and submit the details to ERPC and ERLDC for further deliberation.

- Thereafter, a separate meeting with representatives from Powergrid, CTU, DVC, WBSETCL, ERLDC and ERPC shall be convened at ERPC for further course of action for both short term and long term.

In 162nd OCC, it was decided that existing arrangement will be continued till further decision on this issue takes place in the above meeting.

In 163rd OCC, ERLDC informed that with split bus arrangement at 400kV Durgapur it has been observed that

1. Power flow through 220kV Durgapur(PG)-Parulia(D) D/C cannot be controlled if all three 400/220kV ICTs are kept in service, along with 220kV Waria – Bidhannagar D/C

2. WBSETCL is aggrieved if 220kV Waria – Bidhannagar D/C is kept off in order to control power flow through 220kV Durgapur(PG)-Parulia(D) D/C

3. If either 400/220kV ICT-2 or ICT-3 is kept off (to control power flow through 220kV Durgapur(PG)-Parulia(D) D/C) , then the other 400/220kv ICT gets heavily loaded.

In view of the above constraints experienced in real time operation, Durgapur(PG) substation is now being operated without sectionalizing the 400kV buses 1 & 3 and 2 & 4 and all the three 400/220 kV ICTs are in service, parallel to each other. Further, one circuit of 220kV Waria – Bidhannagar D/C line is also in operation.

TCC may note.

## Deliberation in the TCC Meeting

*DVC informed that they had communicated the issue to CEA and CEA had conducted two meetings to resolve the issue.*

*TCC advised DVC to place outcome in ensuing State Standing Committee Meeting scheduled to be held on 19th December 2019.*

| ITEM NO. B20: | 400 kV Split Bus operation of 400 kV Kahalgaon Substation |
|---|---|

In the 158th OCC meeting, Bus split operation of 400 kV Kahalgaon substation has been discussed. NTPC has informed that the 400 kV Bus split is ready for operationalization in all aspects. NTPC and PGCIL have informed that the group setting for revised protection setting has been implemented w.r.t. Bus split arrangement at remote ends. OCC decided to monitor the power flows after putting the Durgapur bus splitting in service and further decision on putting the Kahalgaon bus splitting scheme in operation would be reviewed in next OCC Meeting.

The result of Durgapur Bus split trial including power flow was demonstrated in 159th and 160thOCC meeting. It was observed that there is no constraint on the 400 kV network during normal bus split operation of Durgapur substation.

With these experiences of 400 kV Durgapur Bus split, it is desired that 400 kV Kahalgaon Bus split may be operationalized.

*In 161st OCC, NTPC has informed that the 400 kV Bus split is ready for operationalization at 400 kV Kahalgaon. But two 400/132kV ICTs are to be erected at 400 kV Kahalgaon and the ICTs are yet to be delivered.*

*NTPC requested other constituents to spare the ICTs temporarily for an interim arrangement at 400 kV Kahalgaon.*

*In 163rd OCC, constituents informed that no spare 400/132kV ICTs are available.*

*OCC advised NTPC to accelerate the erection process of new ICTs at 400 kV Kahalgaon.*

NTPC may update.

TCC may note.

## Deliberation in the TCC Meeting

*NTPC informed that 400/132kV ICTs would be commissioned by June 2020.*

| **ITEM NO. B21:** | **Declaration of high demand / low demand season for 2020-21** |
|---|---|

Regulation 42 of CERC (Terms and Conditions of Tariff) Regulations, 2019, pertaining to computation and payment of capacity charge for thermal generating stations, contains the following provisions:

*"The capacity charge shall be recovered under two segments of the year, i.e. High Demand Season (period of three months) and Low Demand Season (period of remaining nine months), and within each season in two parts viz., Capacity Charge for Peak Hours of the month and Capacity Charge for Off Peak Hours of the month"*

*"The number of hours of "Peak" and "Off-Peak" periods during a day shall be four and twenty respectively. The hours of Peak and Off-Peak periods during a day shall be declared by the concerned RLDC at least a week in advance. The High Demand Season (period of three months, consecutive or otherwise) and Low Demand Season (period of remaining nine months, consecutive or otherwise) in a region shall be declared by the concerned RLDC, at least six months in advance:*
*Provided that RLDC, after duly considering the comments of the concerned stakeholders, shall declare Peak Hours and High Demand Season in such a way as to coincide with the majority of the Peak Hours and High Demand Season of the region to the maximum extent possible"*

In 162nd OCC, ERLDC submitted that an exercise has been done for identification of high demand season for Eastern Region for 2016-17, 2017-18, 2018-19 and 2019-20 (as per draft LGBR for 2019-20). The months with the highest net energy met in Eastern Region are as below:

| Year | Months with highest net energy met |
|---|---|
| 2016-17 | April, July, August |
| 2017-18 | September, March, August |
| 2018-19 | August, July, June |
| 2019-20 (LGBR) | August, September, July |

Based on the detailed analysis, it is observed that net energy met by Eastern Region is high in the months of July, August and September. Therefore, the months of July, August and September are selected as high demand season for the year of 2020-21 for the Eastern Regional Grid and the same has been posted in ERLDC's website as well as communicated to all SLDCs vide letter no ERLDC/SO/148-Op.Cor./2595-2602 dated 01st October 2019. As no comments have been received from any constituent till date, so July, August and September are selected as high demand season for the year of 2020-21 for Eastern Region.

ERLDC clarified that peak (Max 4 hours) and off-peak hours (rest 20 hours) can be declared 7 days in advance.

ERLDC added that if a generating station's major share allocation is in the other region, that region's demand pattern has to be considered by the station for its availability determination.

MS, ERPC submitted that high demand/low demand seasons are to be considered on Regional demand pattern rather than constituent wise demand pattern. If any constituent has any fruitful suggestions, it can be forwarded to ERLDC by 31st October 2019. But the final decision in this regard will be taken by ERLDC.

Thereafter, ERLDC informed that DVC and West Bengal have communicated their own seasonal demand patterns. However, based on analysis of demand data for last three years, it is observed that Eastern Region as a whole has maximum energy consumption during the period July to September, as already indicated earlier. Therefore **July, August and September** would be considered as the high demand season for the year 2020-21.

*In 163rdOCC, members confirmed **July, August and September** as the high demand season of ER for the year 2020-21.*

TCC may confirm.

## Deliberation in the TCC Meeting

*TCC confirmed that **July, August and September** as the high demand season of ER for the year 2020-21.*

| ITEM NO. B22: | Load Generation Balance Report (LGBR) of ER for the year 2020-21 |
|---|---|

As per the IEGC, RPC Secretariat is responsible for finalization of the Annual Load Generation Balance Report (LGBR) both for Peak as well as Off-peak scenarios and the annual outage plan for Generating units/Transmission lines of State and Central Sector of the respective region.

In 161st OCC, all the utilities were advised to plan the load and generation properly for peak & off-peak of the year 2020-21 and submit the plan to ERPC.

The LGBR Meeting for preparation of draft LGBR for 2020-21 is scheduled to be held at 11:00 hrs on 6th December 2019 which will be forwarded to CEA. Thereafter, final LGBR for 2020-21 would be prepared and issued by CEA.

**The shutdown schedule of generating units decided in the final LGBR for 2020-21 by CEA shall be strictly followed by the constituents.**

Members may note.

## Deliberation in the TCC Meeting

*ERPC Secretariat informed that draft LGBR for 2020-21 has been prepared and will be forwarded to CEA shortly.*

*TCC advised all the constituents to strictly adhere to the shutdown schedule of generating units as per the final LGBR.*

| **ITEM NO. B23:** | **Preponement of Commissioning of following assets of PGCIL** |
|---|---|

1. **Preponement of Commissioning of following assets under ERSS XX & ERSS XVIII scheme in ER-I**

It has been planned for installation of following assets under ERSS XX & ERSS XVIII scheme before schedule date of completion (SCOD):

| Sl No | Name of Assets | Scheduled Completion | Anticipated DOCO |
|---|---|---|---|
| (i) | 400/220 kV, 315 MVA ICT at Banka under ERSS XX | 01/05/2020 | 28/12/2019 |
| (ii) | 400/220 kV, 315 MVA ICT at Lakhisarai under ERSS XX | 01/05/2020 | 25/12/2019 |
| (iii) | 765kV, 80 MVAR Spare Reactor at Ranchi under ERSS XX | 01/05/2020 | 31/03/2020 |
| (iv) | Re-conductring of 220 kV New Purnea- Purnea line under ERSS XX | 01/05/2020 | 25/12/2019 |
| (v) | Conversion of 63 MVAR fixed line reactor at New Purnea end of one Ckt of New Purnea – Kishanganj 400kV D/C line to Switchable line raector | 01/05/2020 | 25/12/2019 |
| (vi) | 2 nos of 765 kV Line bays along-with 240 MVAR switchable line reactors at Ranchi for 765kV Ranchi-Medinipur line (under TBCB) under ERSS XVIII | 01/08/2020 | 31/03/2020 |

Ahead of schedule commissioning of the above assets may kindly be agreed considering the requirement of grid.

*In 163rd OCC, members agreed to consider preponement of the assets from scheduled completion date to actual commissioning date for Sl no (i) to (v) considering the requirement of Grid.*

*OCC also agreed to consider preponement of the assets from scheduled completion date to actual commissioning date the line for Sl no (vi) considering the requirement of Grid.*

*In 41st CCM, Members agreed to consider preponement of the assets from scheduled completion date to actual commissioning date in view of Grid requirement.*

*Matter was referred to forthcoming TCC meeting for further Concurrence.*

TCC may approve.

## Deliberation in the TCC Meeting

*TCC approved the preponement of the assets from scheduled completion date to actual commissioning date of the elements in Sl no (i) to (v) considering the requirement of Grid.*

*TCC opined that further discussion is needed in lower fora of ERPC for the elements in sl no. (vi).*

*TCC referred to ERPC for further concurrence.*

**2. Early commissioning of 125MVAR Bus Reactor at Subhasgram and 500MVA ICT-III at Maithon**

Under ERSS-XX package, both 500MVA ICT-III at Maithon and 125MVAR Bus Reactor at Subhasgram was expected to be commissioned in April, 2020. The material has already been received at both the substations. Considering the requirement of the grid it is prudent to commission the reactor at Subhasgram S/s which will definitely be beneficial during ensuing winter. Similarly, entire commissioning activity of the supplied 500MVA ICT-III at Maithon can be finished before summer season, if shutdown is provided.

Considering the present load scenario in Subhasgram and Maithon, it is proposed that early commissioning of the said 125MVAR Bus Reactor at Subhasgram S/S and 500MVA ICT-III at Maithon may please be agreed.

*In 162nd OCC, Members agreed to the proposal of early commissioning of 125MVAR Bus Reactor at Subhasgram and 500MVA ICT-III at Maithon for the benefit of Eastern Region Grid.*

TCC may approve.

## Deliberation in the TCC Meeting

*TCC approved early commissioning of 125MVAR Bus Reactor at Subhasgram and 500MVA ICT-III at Maithon for the benefit of Eastern Region Grid.*

*TCC referred to ERPC for further concurrence.*

3. **Preponement of commissioning of 160 MVA 220/132 kV ICT-IV of Malda S/S in place of 50 MVA ICT-IV.**

Under ERSS-XX package, existing 50 MVA ICT-IV of Malda SS is to be replaced by 160 MVA ICT. As per Investment Approval, the commissioning schedule of the said ICT was February-2020. In 41st ERPC, the preponement was approved.

*The said ICT was charged and declared under DOCO w.e.f. 01.10.19.*

TCC may note.

## Deliberation in the TCC Meeting

*TCC noted.*

| | |
|---|---|
| **ITEM NO. B24:** | **Installation of Earth Switches at old stations of NTPC** |

Powergrid informed that 400KV D/C Talcher-Rourkela and 400KV D/C Talcher-Rengali lines belong to POWERGRID and it is being maintained by POWERGRID. The 400KV bays at the switchyards for both the lines at NTPC end belong to NTPC. There is no line side earth switch available for these lines at NTPC end for earthing of any of these lines during shutdown/maintenance activities. Only one circuit is allowed for shutdown for maintenance of these lines which leads to severe induction due to other circuit in service. Though localized earthing is being done during maintenance by POWERGRID, it is not sufficient for the safety of the working person against induction. In view of this NTPC is requested to install the earth switch for these lines at the earliest.

In 160th OCC, it was informed that earth switches are not available for the transmission lines at old NTPC switchyards viz. Talcher, Farakka and Kahalgaon.

OCC opined that earth switches are mandatory for the safety of the working persons doing the maintenance. OCC advised NTPC to install the earth switches at the earliest.

Talcher, NTPC informed that they are in process of installing earth switches at Talcher.

*In 41st TCC, NTPC assured that earth switches for the transmission lines at old NTPC stations shall be made available by December, 2019.*

*ERLDC advised NTPC to ensure the availability of the earth switches in the recently commissioned stations and in future stations also.*

NTPC may update.

## Deliberation in the TCC Meeting

*NTPC confirmed that earth switches for the transmission lines at old NTPC stations shall be made available by December, 2019.*

| | |
|---|---|
| **ITEM NO. B25:** | **Long Outage of main Bay of 400KV Indravati (PG)-Indravati (OHPC) at Indravati (PG) Substation** |

The main Bay of 400KV Indravati (PG)-Indravati (OHPC) line at Indravati (PG) S/s belonging to OPTCL, is out of service since 29th Sept 2018 for replacement of new CB and CT. Although work by OPTCL was started, it is very slow and completely stopped since March'19. Due to non-availability of this bay, ERLDC is not permitting bay maintenance of other POWERGRID circuits i.e. 400KV Indravati-Rengali and 400KV Indravati-Jeypore lines.

OPTCL is requested to expedite the restoration work of the bay and complete the same at the earliest.

*In 41st TCC, OPTCL informed that the restoration work of the bay would be completed by December 2019.*

OPTCL may update.

## Deliberation in the TCC Meeting

*ERLDC informed that the main Bay of 400KV Indravati (PG)-Indravati (OHPC) line at Indravati (PG) S/s is out of service since November 2016 and requested OPTCL to restore the Bay at the earliest.*

*OPTCL informed that the restoration work of the bay would be completed by December 2019.*

| | |
|---|---|
| **ITEM NO. B26:** | **REPAIR/RECTIFICATION OF TOWER AT LOCATION 79 OF 132KV RANGPO-MELLI D/C LINE AND CHUZACHEN (RANGPO) -GANGTOK TRANSMISSION LINES** |

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

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

In 37th TCC, it was decided that Sikkim would give a comprehensive proposal to PGCIL within one week regarding handing over of the relevant segments of the line to PGCIL. Thereafter, PGCIL and Sikkim would sit together and resolve the issues involved therein.

In 145th OCC, Sikkim informed that the proposal had been sent to State Govt. for approval.

In 148th OCC, Sikkim informed that State Govt. for approval is pending.

OCC took serious note of delay in tower rectification and referred to TCC for further guidance.

In 39th TCC, Sikkim informed that the proposal for handing over the line to PGCIL is under consideration with the state Government. They are under the process of preparation of cost estimate of part of the line, which is under Sikkim jurisdiction.

*In 41st TCC, Sikkim informed that they are planning to hand over the line to PGCIL.*

*PGCIL informed that they are ready to take over the line but the cost involved in rectifying the defective tower may also be included in the proposal.*

*TCC advised PGCIL and Sikkim to settle the issue mutually.*

Sikkim may update.

TCC may deliberate.

## Deliberation in the TCC Meeting

*Sikkim informed that Govt. of Sikkim has turned down the proposal of handing over the line to PGCIL. Sikkim added that now they are planning to rectify the defective tower.*

*TCC advised Sikkim to rectify the defective tower at the earliest to avoid major devastation.*

*Sikkim added that they would rectify the defective tower by June 2020.*

| **ITEM NO. B27:** | **Bypassing arrangement of LILO of 400kV Lines at Angul** |
|---|---|

LILO of Meramundali-Bolangir/Jeypore 400 kV S/C line and LILO of one Ckt of Talcher Meramundali 400 kV D/C line was done at Angul 765/400kV Sub-station, as interim transmission scheme for Phase-I generation projects in Odisha. In the 17th Standing Committee Meeting on Power System Planning of Eastern Region held on 25-05-2015, it was decided to make switching arrangements at Angul substation such that above 400 kV LILOs may be operated either by-passing Angul substation or terminating at Angul substation as and when required, depending upon the power flow condition. The bypass arrangement for these circuits were under implementation at Angul by Powergrid.

The project was approved in 17th Standing committee meeting held on 25th May 2015, however even after more than four years of approval for this small project which doesn't involve any ROW problem, it is yet to be implemented on site.

In absence of this bypass arrangement, severe high loading of 400 kV Angul-Meramandali was observed in case of low generation at Talcher Super Thermal and/or high import from WR making the system N-1 insecure and endangering the grid security in Eastern Region. Commissioning schedule of the bypass arrangement was being deferred many a time, in 162nd OCC meeting POWERGRID confirmed that the bypass arrangement will be commissioned by the month of November 2019, which is again deferred.

Powergrid may update.

## Deliberation in the TCC Meeting

*Powergrid informed that the work would be completed by December 2019.*

| ITEM NO. B28: | UFR Inspection Report of BSPTCL substations |
|---|---|

The ERPC UFR inspection group visited 132/33kV Digha, 132/33kV Mithapur and 132/33kV Gaighat substations of BSPTCL for UFR Audit on 22.08.2019. The team physically inspected the feeders which are connected with UFRs at the above sub-stations. The report of the inspection is furnished below:

| Sl. No. | Name of the substations | Feeder connected with UFR | Voltage rating (kV) | Adopted UFR setting (Hz) | Tested initiated frequency (Hz) | UFR make |
|---|---|---|---|---|---|---|
| 1 | 132/33kV Digha | Pataliputra | 33 | 49.0 | 49.0 | AREVA Micom P127 |
| 2 | | Excise Colony | 33 | 49.2 | - | RMS 2H34K2 |
| 3 | | Digha-I | 33 | 48.6 | - | RMS 2H34K2 |
| 4 | | Digha-II | 33 | 48.6 | - | RMS 2H34K2 |
| 5 | 132/33kV Mithapur | Pesu-IV | 33 | 48.8 | 48.8 | AREVA Micom P142 |
| 6 | | Pesu-V | 33 | 48.8 | 48.8 | AREVA Micom P142 |
| 7 | 132/33kV Gaighat | Saidpur | 33 | 48.6 | 48.59 | SEL-351A |
| 8 | | City Feeder | 33 | 48.6 | 48.59 | SEL-351A |

The above UFR setting were tested with help of Secondary injection Kit owned by BSPTCL. During the inspection, the followings were observed:

| Substation | Observation |
|---|---|
| 132/33 kV Digha | For 33 kV Pataliputra feeder, the UFR is provided with direct trip wiring and the relay tripped at desired frequency. For all other three feeders, **the UFR relays were not working as the relays got burned due to some DC fault in substation.** |
| | **33 kV Excise colony feeder consists of emergency loads like supply to Airport & Hospital etc.** |
| 132/33 kV Mithapur | The UFRs are provided with direct trip wiring and tripped at desired frequency. |
| | **33 kV Pesu-V feeder was charged on no-load.** It was found that the feeder was being used only in case of contingency. |

| | |
|---|---|
| 132/33 kV Gaighat | The UFRs are provided with direct trip wiring and tripped at desired frequency |

*In 161st OCC, BSPTCL was advised to review the UFR feeders as per the revised system configuration and suggested to shift the UFRs to unimportant radial loads.*

BSPTCL may update.

## Deliberation in the TCC Meeting

*BSPTCL informed that they had already replaced the defective UFR. BSPTCL added that they are in process of reviewing the UFR list.*

| | |
|---|---|
| **ITEM NO. B29:** | **Nodal agency under the guidelines for Import/Export (Cross Border) of Electricity 2018** |

Ministry of Power vide letter dated 26th November 2019 informed that NTPC Vidyut Vyapar Nigam Ltd. (NVVN) has been nominated as Settlement Nodal Agency for settlement of grid operation related charges with neighbouring countries namely, Bangladesh, Bhutan, Nepal and Myanmar.

TCC may note.

## Deliberation in the TCC Meeting

*TCC noted.*

| | |
|---|---|
| **ITEM NO. B30:** | **PAYMENT/RECEIPT STATUS FROM VARIOUS POOL ACCOUNTS IN ER** |

### 1) PAYMENT OF DEVIATION CHARGE – PRESENT STATUS

Deviation Pool Account Fund of ER is being maintained & operated by ERLDC, in accordance with the CERC Regulations. As per Regulations 10 (1) of "Deviation Settlement Mechanism and related matters" the payment of charges for Deviation shall have a high priority and the concerned constituents shall pay the indicated amounts within 10 days of issue of statement of Charges for Deviation including Additional Charges for Deviation by the Secretariat of the respective Regional Power Committee in to the "Regional Deviation Pool Account Fund" of the concern region.

The status of Deviation Charge payment as on 18.11.2019 is enclosed at ***Annexure – B30.1***.The current principal outstanding Deviation Charge of BSPHCL, JBVNL and GMR is **₹ 41.18 Cr, ₹ 9.42 Cr, & ₹ 8.68 Cr** respectivelyconsidering bill up to 10.11.2019. ERLDC is regularly giving reminders to BSPHCL, JBVNL & GMR to liquidate the outstanding Deviation charges.

Further Sikkim is not paying DSM charges on regular basis and waiting for adjustment with the receivable amount.

Sikkim may please release the Payable amount as per bill within due date instead of waiting for adjustment.

BSPHCL, JBVNL, GMR & Sikkim may confirm the program for payment of outstanding dues.

## Deliberation in the TCC Meeting

*ERLDC informed that BSPHCL, JBVNL, APNRL and GMR had liquidated* **₹ 31.1 Cr, ₹ 3.24 Cr, ₹ 51.55 lakhs and ₹ 8.7 Cr** *respectively. TCC advised Sikkim to pay the outstanding amount at the earliest.*

### 2) INTEREST DUE TO DELAYED PAYMENT OF DEVIATION CHARGES.

Due to delayed payment of deviation charges in DSM Pool in FY 2018-19, interest was computed for all the DSM Pool Members. ERLDC vide letter No. संदर्भ :पूक्षेभारप्रेके./एम.ओ/यू-11 / 1148 dated 24.06.19 have issued the interest statement for FY 2018-19.

Settlement of delayed payment Interest for 2018-19 for the recipient constituents has been done on 31.05.19. However the statement of interest amount as on 18.11.19 is enclosed in **Annexure-B30.2**. Chuzachen,Sikkim,GMR, NVVN(Nepal), Dikchu, HVDC(Pusauli) and NPGC are requested to clear the dues.

Constituents, who are in payable mode, may please confirm the program for delayed payment of Interest.

## Deliberation in the TCC Meeting

*ERLDC informed that NVVN(Nepal) had liquidated the due amount. TCC advised the concerned constituents to clear the outstanding dues at the earliest.*

### 3) Non-payment of Deviation Charges by IBEUL

IBEUL is not paying Deviation charges in ER DSM Pool since 12.04.2017 (almost 2.5 years) and present outstanding amount payable by M/s IBEUL towards principal deviation charges is **₹ 112.50429 Lac** considering bill up to 02.06.2019 (However, there is no power flow in the circuits) and**₹ 34.40 Lac** against the delayed payment interest of deviation charges till 18.11.19. A petition in CERC had been filed in July 2018 by ERLDC against M/s IBEUL for violation of Regulation 10 of DSM regulations 2014. Hon'ble commission directed in an order against petition no. 230/MP/2018 dated 16.04.2019 that the Petitioner is at liberty to approach NCLT for appropriate directions in accordance with law. Further, ERLDC has filed a claim in NCLT on 31.05.2019 and the same is admitted by NCLT.

This is for information.

## Deliberation in the TCC Meeting

*TCC noted.*

**4) REACTIVE ENERGY CHARGES – PRESENT STATUS.**

The updated position of Receipt/Payment of Reactive Energy Charges in the pool as on 18.11.2019 is indicated in ***Annexure – B30.3***. The total outstanding receivable on account of Reactive charges from West Bengal, Bihar & JBVNL is ₹78.89 lacs., ₹ 2.71 Lacs & ₹ 33.36 Lacs respectively. WBSETCL is regularly paying the reactive charges.

Again, an amount of ₹ 16436/- on account of Reactive Charges is payable by Sikkimwhich is not yet paid.

Bihar, SIKKIM & JBVNL may confirm the program for payment of outstanding dues.

## Deliberation in the TCC Meeting

*TCC advised the concerned constituents to clear the outstanding dues at the earliest.*

| | |
|---|---|
| **ITEM NO. B31:** | **Opening of LC by ER constituents for DSM payments** |

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

Quote

*All regional entities which had at any time during the previous financial year failed to make payment of Charges for Deviation including Additional Deviation Charges for Deviation within the time specified in this regulations shall be required to open a Letter of Credit (LC) equal to 110% of its average payable weekly liability for Deviations in the previous financial year, in favour of the concerned RLDC within a fortnight from the date these Regulations come into force……..*

*……..Provided further that LC amount shall be increased to 110% of the payable weekly liability in any week during the year, if it exceeds the previous LC amount by more than 50%.*

Unquote

The details of LC amount required to be opened in 2019-20 by ER constituents is given in ***Annexure –B31.*** Letters to this effect has been issued by ERLDC to the defaulting entities.

The LC in respect of BSPHCL, GATI and DIKCHU has already expired and not yet renewed /opened. DVC, NVVN (NEPAL & BD), POWERGRID(ER-I & ER-II) and NPGC have not yet opened/renewed LC. GRIDCO intimated that they opened the LC and send to ERLDC.

The LC of JLHEP & APNRL is going to expire on 30.11.19 and 31.12.19 respectively.

The defaulting constituents may please intimate the latest status.

## Deliberation in the TCC Meeting

*TCC advised all the concerned constituents to open the LC as per CERC regulations.*

| ITEM NO. B32: | Trans-national (Bhutan) metering issue. |
|---|---|

**1. Reverse polarity of SEM at Deothang and Silicon Factory**

As decided in the 157th OCC Meeting of ERPC, shutdown was approved to Motanga S/s subject to availability of SEMs at Deothang and Silicon Factory. Accordingly, SEM of Motanga was shifted to Deothang end and new SEM was installed at Silicon factory. This connection has removed w.e.f 27.09.19 and Deothang end SEM has been used for Kurichu HEP generation and ER-NER energy computation. SEM at Deothang end was connected with reverse polarity since 02.06.19. Matter was already communicated to NLDC & Bhutan and no corrective action has been taken yet.

Bhutan may please update the status.

## Deliberation in the TCC Meeting

*Bhutan representative informed that the reverse polarity issue has already been rectified. TCC advised ERLDC to check and confirm the same.*

**2. Non-receipt of weekly SEM data associated with MHP**

For energy calculation of Mangdechhu HPS (4X180MW) total 16(sixteen) nos of SEMs have been installed at different locations of Bhutan (Mangdechhu, Jigmelling&Yumro). SEM data of Mangdechhu, Jigmeling and Yumro was not received by ERLDC till date. Due to non-receipt of data, validation and meter healthiness has not yet been checked at ERLDC.

Bhutan may please update the status.

## Deliberation in the TCC Meeting

*PTC assured to take necessary action for timely furnishing of requisite data.*

| ITEM NO. B33: | Non Receipt/Late Receipt of SEM data from Various Locations |
|---|---|

As per IEGC (effective from 3.5.2010) Sub-clause-22 of Clause-6.4 (demarcation of responsibilities), all concerned utilities in whose premises SEMs are installed shall take weekly meter readings and transmit the same to RLDC by Tuesday noon for timely issuance of Deviation account Bill. Significant improvement in timely receipt of SEM data has been seen after AMR implementation at various locations and most of the meter data is being received by Tuesday.

i) **Late receipt of SEM data** : ERLDC is receiving the weekly SEM data by Tuesday noon from maximum locations. However, data is received on Wednesday or later from Gangtok(PG), BSPTCL( SonnagarNew,Begusarai&Biharshariff), WBSETCL (North Bengal, Gazole, BidhannagarAlipurduar and Rammam) & SIKKIM.

In 40th CCM, all the constituents were requested to adhere to the schedule as per IEGC.

PGCIL, WBSETCL, BSPTCL & Sikkim may update the status.

## Deliberation in the TCC Meeting

*TCC advised all the concerned constituents to take necessary action.*

**ii) Non-receipt of Arah, Dehri&Siparameter data from BSPTCL**

Ara(BSPTCL) end meter data of 132 KV Ara(PG) Line and Dehri(BSPTCL) end of 220 kV Pusauli(PG) Dehri& 220kV Gaya(PG) - Dehri Line D/C is not being received by ERLDC due to AMR related issues. SEM data of the above locations were downloaded by ERLDC from AMR. Now, due to AMR problem at Ara and Dehri, BSPTCL was requested to send the data of meter from above locations by downloading at their end till restoration of AMR. M/s TCS has informed verbally that due to network failure, data is not available with AMR.
Again, three(3) nos of SEM are installed at Sipara end for 220KV Patna(PG)-Sipara feeders. Out of three, only one meter is reporting to AMR. BSPTCL was requested for sending the rest of two meters data manually but data is not received. Similarly, Jagdishpur, Rajgir and Nalanda at BSPTCL end are also not sending the meter data on weekly basis.

BSPTCL may please respond and Powergrid may update the program AMR rectification.

## Deliberation in the TCC Meeting

*TCC advised all the concerned constituents to take necessary action.*

**iii) Reverse polarity issue of Energy Meter at Begusarai(BSPTCL)**

Meter(ER-1344-A) installed at 220 KV Begusarai(BSPTCL)-Purnea(PG) Line-2 at Begusarai end was found to be in reverse polarity w.e.f 04.09.2019.

BSPTCL may update the status.

## Deliberation in the TCC Meeting

*TCC advised BSPTCL to rectify the reverse polarity issue at the earliest.*

| | |
|---|---|
| **ITEM NO. B34:** | **Additional Agenda** |

**1. The following schemes have been approved in the 2nd meeting of Standing Committee on Transmission of Eastern Region held on 05-07-2019:**

**A. Modification in earlier approved schemes**

**1. Termination of 400kV lines at Jeerat (WBSETCL) substation under the ERSS-XV and ERSS-XVIII schemes**

1.1 Following 400kV lines are existing / under construction at 400/220kV substation of Jeerat (WBSETCL):

**Existing:**

(i) Jeerat (WBSETCL) – Sagardighi 400kV S/c line of POWERGRID

(ii) Jeerat (WBSETCL) – Rajarhat/Subhashgram 400kV S/c line of POWERGRID

(iii) Jeerat (WBSETCL) – Barkeshwar (WBSETCL) 400kV S/c line of WBSETCL

(iv) Jeerat (WBSETCL) – Kolaghat (WBSETCL) 400kV S/c line of WBSETCL

**Under Construction:**

(v) LILO of Sagardighi – Subhashgram 400kV S/c line at Jeerat (WBSETCL) as a part of ERSS-XV by POWERGRID

(vi) Jeerat (New) – Jeerat (WBSETCL) 400kV D/c line (Quad) as a part of ERSS-XVIII being implemented under TBCB by POWERGRID Medinipur-Jeerat Transmission Ltd.

1.2 There was RoW problem for termination of new 400kV lines being implemented under ERSS-XV and ERSS-XVIII at Jeerat (WBSETCL) S/s. Accordingly, in the 19th meeting of SCPSPER, following was decided to resolve the issue:

(i) Dismantling of dead end towers and termination of existing lines mentioned at 1.1 (i) to (iv) through GIS duct, at the existing 400kV Jeerat AIS S/s (WBSETCL) as ISTS.

(ii) The new lines mentioned at 1.1 (v) and (vi) can be directly terminated on separate double circuit towers at normal height (around 45 meters) to new GIS extension area.

(iii) Further, it was also acknowledged that implementation of LILO of Sagardighi-Subhasgram 400kV S/c line at Jeerat along with associated line bays shall get delayed due to addition of above mentioned GIS duct arrangement.

1.3 Since the work to be carried out under ISTS may not match the timeline of ERSS-XV & ERSS-XVIII schemes, it was requested to extend the completion of ERSS-XV & ERSS-XVIII schemes in the 1st meeting of ERSCT. Further, in the 1st ERSCT it was also decided that “after finalization of implementing agency for the work, a separate meeting in CEA with CTU, POWERGRID, WBSETCL and implementing agency will be held to discuss the extension of completion schedule of ERSS-XV & ERSS-XVIII schemes. Decision of the meeting will be put up before ERSCT for ratification.”

1.4 In the 2nd meeting of ECT held on 06-08-2018, POWERGRID has been entrusted with the works mentioned above at 1.2 (i) through RTM.

1.5 For dismantling and termination of various lines of POWERGRID and WBSETCL through GIS duct, agreement was signed by POWERGRID with WBSETCL on 07-11-2017, i.e. WBSETCL is implementing the said works on POWERGRID's behalf at its substation. The work has been awarded to JV of M/s Techno & M/s ABB in Nov'18 after approval of mode of implementation in the 2nd ECT meeting. The expected commissioning schedule of the GIS works is 15 months (i.e. Feb 2020) from award.

**Members may approve revised completion schedule of ERSS-XV/XVIII scheme as Feb 2020.**

## 2. Conversion of 50MVAr bus reactor at Farakka generation switchyard to switchable line reactor under ERSS-15

2.1 In the 19th meeting of Standing Committee on Power System Planning of Eastern Region held on 01-09-2017 it was informed that one spare future bay has been selected for termination of one circuit of Farakka – Baharampur D/c line at 400kV bus at Farakka generation switchyard, however, due to non-availability of adjacent bay for termination of the other circuit it is proposed to terminate the second circuit in the exiting 50MVAR bus reactor bay along with conversion of this reactor to switchable line reactor. This arrangement would result in connection of 50MVAR switchable line reactor in one circuit of Farakka – Baharampur 400kV D/c line at Farakka end to be utilised as bus reactor.

2.2 In the meeting, members agreed for conversion of 50MVAR (3x16.67) bus reactor at Farakka to switchable line reactor to be installed in one circuit of Farakka – Baharampur 400kV D/c line as ISTS. Subsequently, in the 2nd meeting of ECT it has been decided that the said works would be implemented by POWERGRID under RTM. **Accordingly, as per ECT approval the scheme has already been implemented by POWERGRID under the ERSS-XV scheme.**

***Members may please note.***

## 3. Extension of completion schedule for installation of ICT-2 at Farakka (NTPC) under ERSS-XII

3.1 In 19th meeting of SCPSPER held on 01.09.2017, constraint in transportation of ICT-II at Farakka (NTPC) under ERSS-XII were discussed and it was recorded that:

*"In case of transportation constraint at Farakka Switch Yard, the ICT may be transported through Farakka Feeder Cannel waterways at additional cost under ERSS-XII scheme".*

3.2 Subsequently in first meeting of ERSCT held on 16.07.2018 following was decided:

*"After deliberation, following modification in ERSS-XII was agreed with extension in completion schedule by 18 months from the schedule COD".*
*"… New ICT which is being procured to replace the burnt ICT, Patna to be diverted to Farakka for installation of ICT-II".*

3.3 Based on decision on ERSCT meeting held on 26.07.2018, POWERGRID took procurement action for ICT and NOA for supplying new ICT for Farakka was placed in April 2019 with completion schedule of 12 months i.e. up to April 2020.

3.4 However, considering shutdown constraint at NTPC and commission activities of bays & ICT, completion schedule of Installation of ICT-2 at Farakka (NTPC) under ERSS-XII may need to be extended till June 2020.

***Members may approve the extension of completion schedule of installation of ICT-2 (400/220kV, 315MVA) at Farakka (NTPC) under ERSS-XII till June 2020.***

## 4. Modification in transmission system associated with North Karanpura (3x660MW) generation project of NTPC

4.1 Director (PSPA-II), CEA informed that the evacuation system for North Karanpura (3x660MW) generation project (of NTPC) and ERSS-XIX schemes together was to be implemented by M/s NKTL (subsidiary of Adani) under TBCB route with following scope of works:

(a) North Karanpura – Gaya 400kV D/c (Quad) line

(b) North Karanpura – Chandwa 400kV D/c (Quad) line

(c) Establishment of 400/220 kV, 2x500 MVA sub-station at Dhanbad

(d) LILO of both circuits of Ranchi-MaithonRB 400 kV D/c line at Dhanbad

4.2 However, the work was not progressed. CERC, in its order dated 20.03.2019 in Petition no. 194/MP/2017 has directed CEA to decide revised Scheduled Commercial Date of Operation (SCoD) for execution of the transmission system in consultation with NTPC and the Petitioner.

4.3 Accordingly, a meeting was held at CEA on 23-04-2019, wherein the status of transmission system of NKTL was reviewed and following was agreed.

i. Revised scope of the project:
   a. NKSTPP – Common point would be 13 km multi circuit 400kV line (quad moose conductor).
   b. Common point – Chandwa would be 25 km 400kV D/c line (quad moose conductor).
   c. Common point – Gaya would be 98 km 400kV D/c line (quad moose conductor).
   d. New 400/220kV, 2x500MVA Dhanbad Substation.
   e. 1.2 km D/c LILO of Ranchi-Maithon RB 400kV D/c line at Dhanbad.

ii. NKSTPP-Chandwa 400kV D/c line would be completed in 14 months, i.e. by June 2020 and NKSTPP-Gaya 400kV D/c line would be completed in 23 months, i.e. by March 2021. New 400kV Dhanbad S/s with 1.2 km D/c LILO of Ranchi-Maithon 400kV D/c line would be completed in about 18 months, i.e. by October 2020.

iii. Representative of NKTL agreed for the above time lines subject to getting forest clearance for NKSTPP-Chandwa 400kV D/c line within 200 days and for NKSTPP-Gaya 400kV D/c line within 300 days.

***Members may approve the revised scope of works mentioned above at para 4.3, which is to be implemented by M/s NKTL within above mentioned revised Scheduled Commercial Date of Operation (SCoD).***

## 5. Augmentation of transformation capacity at Muzaffarpur (POWERGRID) S/s

5.1 The load demand in Muzaffarpur & adjoining areas is largely fed by Muzaffarpur (PG) with transformation capacity of 1x500+2x315 MVA. During peak hours following loadings are being observed:

5.2

| Sl. No. | Lines | Maximum Loading (MW) |
|---|---|---|
| **1** | Muzaffarpur (PG)-MTPS (D/C) | 420 |
| **2** | Muzaffarpur (PG)-Hazipur (D/C) | 296 |
| **3** | Muazaffarpur (PG)-Dhalkebar (Nepal) (400kV Transmission Line charged at 220kV) | 150 |
| | **Total** | **866** |

5.3 In present scenario itself, Muzaffarpur (PG) is not able to fulfill N-1 criteria and in case of outage of any power transformer, the situation will be critical. Moreover, if the generation at Kanti (MTPS) reduces, the power supply position at Muzaffarpur 220kV level further aggravates under N-1 of ICTs.

5.4 In future, Amnor (Chappra) GSS(220/132/33 KV) will be connected to Muzaffarpur (PG) through 220 KV D/C lines as approved in 18th Standing Committee Meeting. Further Amnor has been proposed to be connected to Digha(new) GSS (220/132/33 KV) at 220 KV level. BSPTCL has also proposed one 220/132/33 KV GSS at Garaul (Dist. Vaishali) under State Plan, approved in the Bihar cabinet, is getting source at 220 KV level with D/C from Muzaffarpur(PG). Both proposed GSSs (Digha and Garaul) are likely to be commissioned in March-2020. In future the loading pattern on 220kV lines is expected to be as follows:-

| Sl. No. | Lines | Maximum Loading (MW) |
|---|---|---|
| **1** | Muzaffarpur (PG)-MTPS (D/C) | 80 |
| **2** | Muzaffarpur (PG)-Hazipur (D/C) | 250 |
| **3** | Muzaffarpur (PG)-Amnor (BGCL) (D/C) | 300 |
| **4** | Muzaffarpur (PG)-Goraul (Proposed) (D/C) | 200 |
| | **Total** | **830** |

5.5 In view of the above, BSPTCL proposed for addition of one new 500MVA transformer at Muzaffarpur (PG) to ensure uninterrupted power to Muzaffarpur and adjoining areas in the event of outage of any transformer.

5.6 A meeting was held on 26.03.2019 at CEA it was suggested that additional one no. of 500MVA ICT may be installed to meet the load under N-1 criteria.

5.7 Space is available for new 400/220kV, 500MVA ICT. The 400kV ICT bay could be implemented as AIS; however, 220kV ICT bay needs to be implemented as GIS along with 220kV cable from ICT to GIS bay.

**Members may approve installation of one additional 400/220kV, 500MVA ICT at Muazaffarpur (PG) was agreed for installation under ISTS. The 400kV ICT bay would be implemented as AIS & 220kV ICT bay would be implemented as GIS along with 220kV cable from ICT to GIS bay.**

**6. Additional 400kV connectivity at 400/220/132kV Saharsa (new) S/s being implemented under ERSS-XXI through TBCB**

6.1 The present connectivity of upcoming 400/220/132 kV Saharsa (New) GSS at 400 kV level is LILO of Patna (PG) - Kishanganj (PG) 400 kV D/C line and this work is being done by POWERGRID under TBCB route.

6.2 Saharsa (New) GSS has to be fed from two reliable sources, whereas one of the feed i.e. Patna (PG) - Saharsa (New) 400 kV D/c line is having river crossing and tower failure may occur during floods. Therefore, to improve the reliability at 400 kV level, it is proposed to provide an additional source by making LILO of Darbhanga (DMTCL) - Kishanganj (PG) 400 kV D/C line at 400 kV Saharsa (New) S/S.

6.3 A meeting was held on 26.03.2018 at CEA, wherein Chief Engineer (PSP&AII), CEA, and representative of CTU stated that Kishanganj (PG) - Saharsa(New) 400 kV D/c line with Quad moose conductor can meet the load of Saharsa (New) S/S , in case of tower failure of Patna (PG) – Saharsa (New) 400kV D/c line. Under worst case scenario, i.e. with only one circuit of Kisanganj (PG) - Saharsa(New) 400 kV line (with quad moose), the load of Saharsa (New) S/S would be met in the present condition. Based on operational experience, the alternatives may be discussed.

6.4 It was opined that N-1 criteria can only be considered while planning, whereas tower failure in river crossing cannot be considered as a general case in the studies. However, representative of BSPTCL insisted that the 2nd 400kV LILO line i.e. LILO of Kishanganj – Darbhanga may be considered at Saharsa to improved power supply reliability, as the Kishanganj – Patna line during the last two monsoon seasons has suffered prolonged outage due to tower collapse at various locations during flood.

**Members may approve additional 400kV connectivity at 400/220/132kV Saharsa (new) through LILO of both circuits of Kishanganj – Darbhanga 400kV D/c (Q) line.**

## 7. Scheme for limiting of fault current level at 400kV level at Farakka generation switchyard

7.1 The three phase fault level at Farakka TPS (NTPC) at 400kV bus is found to be exceeding the designed short time current rating of equipment (i.e. 40kA). In the present time-frame, the fault level is observed to be about 53kA (assuming split is operational at Maithon, Biharsharif, Durgapur, and Kahalgaon). Moreover, the fault level of Farakka generation switchyard in 2022-23 time-frame is expected to be about 54.5kA.

7.2 The matter was discussed in a meeting held at CEA on 26-03-2019. In the meeting, CTU had proposed for splitting the 400kV Farakka bus using series reactor. With the proposed bus splitting arrangement and a series reactor of 12ohm between the bus sections, it was observed that maximum angular difference between the two sections isabout 4-5 degrees. Representative of NTPC informed that auxiliary power supply for Farakka STPP is designed to derive station and backup power supply for plant auxiliaries from 400kV switchyard through 3 nos. Tie transformers (125MVA, 125MVA and 100MVA). Tie transformer#1 and 2 are fed from 400kV Bus#1 and Tie Transformer#3 is fed from 400kV bus#2. For Farakka STPP stage-1, 2 and 3, there is interconnection between the respective Tie transformers at 33kV, 11/6.6kV and 0.415kV levels. 2x100% / 3x50% redundant feeding configuration is provided at each load centre with two sources fed from different Tie transformers such that there is no loss of plant auxiliaries in case of outage of any one tie transformer. This provision has been kept by design in order to ensure reliability of supply to auxiliaries and avoid loss of generation on outage of Tie Transformer. In case of splitting the 400kV Farakka bus using series reactor arrangement, the phase angle difference between same voltage level buses would be more than 5 degree. Due to this, auxiliary power supply changeover may not take place or heavy circulating currents would flow, which may further trip some of the circuit breakers.

7.3 After system study, NTPC informed that even with 2.5 deg. angle between FSTPP split buses and around 50% loadings of the tie transformer, angular difference at 33kV level is more than 6 deg. which may result in blocking of changeover considering equipment safety. It is also pertinent to

highlight here that as per load flow studies with paralleling at 415Volts level, high recirculating currents are observed in the LT system during paralleling which lead to overloading of the transformer and subsequent tripping of the incoming LT transformer. Changeover from one source to second source is not possible under this condition.

7.4 In view of the above, it was decided that alternate solutions to limit fault current at Farakka would be studied.

7.5 Accordingly, in view non feasibility of either bus splitting of installation of series reactor at Farakka generation switchyard, following alternatives involving physically bypassing of 400kV D/c lines outside the generation switchyard have been studied: (a) Bypassing Kahalgaon ckt-1 & ckt-2 and Durgapur D/c (about 250km)

(b) Bypassing Kahalgaon ckt-3 & ckt-4 and Durgapur D/c (about 250km)

(c) Bypassing Kahalgaon ckt-3 & ckt-4 and Sagardighi D/c (about 160km)

| Case | Fault current at Farakka | Fault current at Sagardighi | Fault current at Durgapur |
|---|---|---|---|
| (a) | 44.16kA | | 41.13kA |
| (b) | 41.76kA | | 41.64kA |
| (c) | 43.16kA | 41.85kA | |

7.6 From the above, it may be observed that alternative-(b) is the most suitable alternative as the 3-phase short circuit current reaches the lowest value. Only shortcoming of this alternative is Kahalgaon ckt-3 & ckt-4 lines (95km) are designed to operate till 85°C, whereas Durgapur lines (150km) are designed to operate till 75°C, which would result in underutilisation of Kahalgaon-Farakka section of resultant Kahalgaon-Durgapur line

7.7 Nevertheless, it may be noted from above that with 41.76kA fault level, most of the Circuit Breakers (CB) at Farakka switchyard are expected to experience fault current less than 40kA as the contribution from each of elements is mostly greater than 1.76kA, except contribution from 3x200MW generators, 2x315MVA ICTs and a few transmission line.

**Members may discuss.**

## Deliberation in the TCC Meeting

*It was informed that the projects of the ER have been approved in 2nd ERSCT meeting held on 5th July 2019 in consultation with ER constituents. So TCC recommended ERPC for acceptance of the same.*

*Further, TCC advised the concerned constituents to obtain any further clarification needed from the Standing Committee in its meeting scheduled to be held on 24th December 2019.*

**8. Cold Spare transformer requirement for Eastern Region:**

CERC had set up a Committee on dated 15.03.2018 consisting of representatives from CERC, NLDC, CEA & POWERGRID under the Chairmanship of the Chief (Engineering) of the CERC to assess the requirement of regional spares including bus reactors, line reactors, ICTs, etc. This would ensure reliability of the grid and reduce downtime in case of any failure/outage. Based on CERC Committee recommendation, following spare transformers will be needed for Eastern Region:

| MVA Rating and Phase | Voltage Rating | Qty Required as per norms | Available Regional Spare | Qty proposed for procurement | Spare requirement |
|---|---|---|---|---|---|
| 3Ø-500MVA | 400/220 | 3 | 0 | 3 | Bihar, Odissa and West Bengal |
| 3Ø-160MVA | 220/132 | 4 | 2 | 2 | Jharkhand and Odissa |
| 3Ø-100MVA | 220/132 | 2 | 0 | 0** | |
| **Total** | | **9** | **2** | **5** | |

********As per CERC committee recommendation, for 3-phase,220KV and below rated equipment, one 3-phase transformer is needed with highest MVA rating in each state.*

**ERPC may consider for approval of 05 nos of cold spare transformers of various ratings as per CERC committee recommendation as mentioned above. The Tariff for the investment made is to be shared by all constituents as per CERC notification.**

## Deliberation in the TCC Meeting

*TCC advised to deliberate the issue in lower fora of ERPC before placing in the TCC Meeting.*

**9. Power assistance from DVC to meet JSPL load during replacement of existing 220kV Joda-JSPL conductor with HTLS.**

Odisha vide letter dated 6th December 2019 informed that the JSPL load of around 50 MW has to be catered by DVC during the reconductoring work of 220kV Joda-JSPL conductor with HTLS. Details are enclosed at **Annexure-B34.9**.

## Deliberation in the TCC Meeting

*DVC readily agreed to extend the necessary assistance to Odisha to meet the existing JSPL load during the reconductoring work of Joda-JSPL line*

*TCC advised DVC and Odisha to finalise the modalities in the SSCM meeting scheduled to be held on 19th December 2019.*

### 10. PRESENTATION BY ASIA INSTITUTE OF POWER MANAGEMENT

Asia Institute of Power Management, a training arm of CESC Ltd. has been entrusted with the task of imparting training to the engineers of Easter Regional Constituents under a project funded by Government of India through PSDF. Further, AIPM has a wide range of training modules for the engineers working in power sector.

AIPM has been invited to give a presentation on their activities.

## Deliberation in the TCC Meeting

*AIPM gave a presentation. The presentation was appreciated by TCC.*

## PART C: ITEMS FOR INFORMATION

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

| ITEM NO. C1 : | Collection of modelling data from Renewable as well as conventional energy generators |
|---|---|

In 153rd OCC meeting held on 21st January 2019, the constituents were advised to submit the details of renewable power plants of 5 MW and above.

As per CEA latest data, total 1360 MW of RES have been installed in Eastern Region. The breakup of the same is as follows-

| Sl No | State/Utility | InstalledCapacity(MW) |
|---|---|---|
| 1 | Bihar | 341 |
| 2 | Jharkhand | 47 |
| 3 | DVC | Nil |
| 4 | Odisha | 521 |
| 5 | West Bengal | 515 |
| 6 | Sikkim | 52 |

In 158th OCC and 159thOCC meeting held on 27th June 2019 and 19th July 2019 respectively format for sharing of modelling data was shared with all the concerned.

However, even after repeated follow up in each OCC meeting till date data is received only from Odisha for 5 solar power plants with cumulative capacity of 115 MW.

Concerned constituents are requested to share the source wise breakup and dynamic data for 5MW and above power plant as per shared format.

| ITEM NO. C2 : | Conversion of Line Reactor as Bus reactor with NGR bypass Scheme |
|---|---|

A mail was circulated by ERLDC for collecting the switchability information of the Line reactors and the availability of the required NGR bypass arrangement for converting the line reactor to Bus reactor. It is observed that some of the lines have switchable reactors but NGR by-pass facility is not available due to which reactors cannot be taken into service as bus reactor, in case line is out. In view of upcoming winter season, the bypass arrangement for NGR needs to be commissioned so that switchable line reactors can be kept in service (as bus reactor) even when a line is opened to check the voltage rise.

| ITEM NO. C3 : | Submission of Thermal Loading of Transmission line and associated terminal equipment by ISTS licensee |
|---|---|

Thermal Loading of Transmission line and associated terminal equipment is one of the most vital data which is utilized for Operation Purpose, calculation of ATC/TTC and various other studies. This information has to be submitted by the transmission utilities. However even after

regular follow-up in past several OCC meetings, significant delay has been observed in submission. Status of submission of data upto first week of December 2019 is as follows:

| Name of Utility | Whether End Equipment Rating Submitted or Not? |
|---|---|
| PGCIL ERTS-1 and ERTS-2 | Partial Details (Final Complete details yet to be received) |
| DMTCL | NA |
| POWERLINKS | NA |
| Sterlite (ENICL, OGPTL, PKTCL) | NA |
| TVPTL | NA |
| Alipurduar Transmission Limited | NA |
| Powerlink | NA |
| CBPTCL | NA |
| OPTCL | Submitted (Revised list given to OPTCL for submission) |
| WBSETCL | Submitted |
| BSPTCL | Submitted |
| DVC | Submitted |
| JUSNL | NA |

| **ITEM NO. C4 :** | **Latest status of State ATC/TTC declared by states** |
|---|---|

As per the "Detailed Procedure for Relieving Congestion in Real Time Operation", the following has also been mandated for monitoring of Congestion in Real Time :

1. As all SLDCs of Eastern region are now declaring ATC/TTC, so, now it would be desired to have the display for Eastern region where states ATC/TTC calculated will be monitored with actual. Status of ATC/TTC Weblinks maintained by SLDC is given below :

| **SLDC** | **ATC/TTC Weblink** |
|---|---|
| Orissa | Dynamic Link for each month (Static Location for All months ATC/TTC to be kept for easy access) |
| Jharkhand | Web Link to be prepared by SLDC |
| Sikkim | Web Link to be prepared by SLDC |

2. Present Status of Mentioning about assumptions and LGBR used for ATC/TTC calculation based on the available online information are as follows **:**

| **SLDC** | **ATC/TTC Review** |
|---|---|
| DVC | No Issue, as ATC/TTC, Constraint and assumption are mentioned properly for both import as well as export TTC |
| West Bengal | Contsraint and Load/gen Assumption needs to be mentioned |
| Orissa | No Issue, as ATC/TTC, Constraint and assumption are mentioned properly for both import as well as export TTC. |
| Bihar | Contsraint and Load/gen Assumption needs to be mentioned |
| Jharkhand | No Issue, as ATC/TTC, Constraint and assumption are mentioned properly for export TTC. |
| Sikkim | Constraint and Load/gen Assumption needs to be mentioned |

| ITEM NO. C5 : | STATUS OF PROJECTS FUNDED UNDER PSDF SCHEMES |
|---|---|

Latest status as updated in 161stOCC Meeting is as follows:

| SN | Name of Constituent | Name of Project | Date of approval from PSDF | Target Date of Completion | PSDF grant approved (in Rs.) | Amount drawn till date (inRs.) | Latest status |
|---|---|---|---|---|---|---|---|
| 1 | WBSETCL | Renovation & up-gradation of protection system of 220 kV & 400 kV Substations in W. Bengal | 31-12-14 | April 2018 Extended till March 2019 | 108.6 Cr | 37 Cr. | Project has been completed. Final value of the project is 51.22 Cr. |
| 2 | | Renovation & modernisation of transmission system for relieving congestion in Intra-State Transmission System. | 22-05-17 | March 2020 | 70.13 | 63.12 Cr | Order has been placed . Work is in progress. |
| 3 | | Installation of switchable reactor at 400kV & shunt capacitors at 33kV | 22-05-17 | November 2019 | 43.37 | 11.69 Cr | Order had been placed and work is in progress. |
| 4 | | Installation of Bus Reactors at different 400kV Substation within the state of West Bengal for reactive power management of the Grid | | | 71.74 Cr | | |
| 5 | | Project for establishment of reliable communication and data acquisition at different substation at WBSETCL. | | | 31.19 Cr | | |
| 6 | WBPDCL | Implementation of Islanding scheme at Bandel Thermal Power Station | *10.04.17* | *March 2018* | 1.39 Cr | 1.25 Cr | *The islanding scheme had been implemented and in operation wef**15.11.2018*** |
| 7 | | Upgradation of Protection and SAS | | April 2020 | 23.48 | 2.348 Cr | Bid opened and order has been placed. Work started. |
| 8 | OPTCL | Renovation & Up-gradation of protection and control systems of Sub-stations in the State of Odisha in order to rectify protection related deficiencies. | 11.05.15 | 31.03.19 | 162.5 Cr. | 37.79 Cr | 90% work has been completed. Total expenditure may not exceed 68 Cr. |
| 9 | | Implementation of OPGW based reliable communication at 132kV and above substations | 15.11.17 | | 25.61 Cr. | 2.56 Cr | Agreement signed on 03.01.2018. Tender has been floated. |
| 10 | | Installation of 125 MVAR Bus Reactor along with construction of associated bay each at 400kV Grid S/S of Mendhasal, Meramundali& New Duburi for VAR control &stabilisation of system voltage | 27.07.18 | | 27.23 Cr | 2.72 Cr | Tender has been floated. |
| 11 | OHPC | Renovation and up-gradation of protection and control system of 4 nos.OHPC substations. | | *U.Kolab, Balimela, U.Indravati, Burla, Chiplima March 2019* | *22.35 Cr.* | 2.235 Cr | Placed the work order. |
| 12 | BSPTCL | Renovation and up-gradation of 220/132/33 KV GSS Biharshariff, Bodhgaya, Fatuha, Khagaul, Dehri -on-sone& 132/33 kV GSS Kataiya | 11/5/15 | 31.07.2018 | 64.02 crore | 56.04 crore | 90% of work has been completed. The work would be completed by Dec 2019. |
| 13 | | Installation of capacitor bank at different 35 nos. of GSS under BSPTCL | 5/9/2016 | 31st March 2019 | 18.88 crore | Nil | Work awarded for all GSS. Work had been completed for 27 substations |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 14 | | Renovation & up-gradation of protection and control system of 12 nos. 132/33 KV GSS under BSPTCL. | 02.01.17 | 31st March 2018 | 49.22 Cr. | | 75% work completed for seven no. GSS as part of R & M work. Revised DPR is to be submitted for rest 5 no. GSS. |
| 15 | JUSNL | Renovation and up-gradation of protection system | *September 2017* | *15 Months* | *138.13 crores* | *39.02 Cr* | LOA placed to Siemens on 28th Sep 2018. |
| 16 | DVC | Renovation and upgradation of control & protection system and replacement of Substation Equipment of 220/132/33 kV Ramgarh Substation | 02.01.17 | 01.06.2019 | 25.96 Cr | 2.596 Crore on 01.06.2017 | Work awarded for 28.07 Cr. Work would be completed by May 2019. |
| 17 | | Renovation and upgradation of control & protection system including replacement of substation equipment at Parulia, Durgapur, Kalyaneshwari, Jamshedpur, Giridih, Barjora, Burnpur, Dhanbad and Burdwan Substation of DVC | 27.11.17 | 24 Months from the date of release of fund. | 140.5 Cr. | 1stinstallment of 14.05 Cr. received on 21.12.2017 | Work awarded for 77.97 Cr. |
| 18 | POWERGRID | Installation of STATCOM in ER | | June 2018 | *160.28 Cr* | *16.028 Cr* | Completed |
| 19 | ERPC | Creation & Maintenance of web based protection database and desktop based protection calculation tool for Eastern Regional Grid | 17.03.16 | Declared GoLivew.e.f 31.10.2017. 5 years on-site operation in progress. | 20 Cr. | 14.83 Cr. | 1) Protection Database Project has been declared 'Go live' w.e.f. 31.10.2017.<br>2) Two (2) years of on-site operation with all updates completed on 31.10.2019. |
| 20a | ERPC | Training for Power System Engineers | *27.07.18* | *March, 2021* | 0.61 Cr. | 0.18 Cr. | Out of 8 batches, training for two (2) batches has been completed. |
| 20b | | Training on Power market trading at NORD POOL Academy for Power System Engineers of Eastern Regional Constituents | *27.07.18* | *April, 2020* | 5.46 Cr. | 4.61 Cr. | Out of 4 batches, training for two (2) batches (One each for senior level and middle level executives) has been completed. |

| **ITEM NO. C6 :** | **STATUS OF THIRD PARTY PROTECTION AUDIT** |
|---|---|

The compliance status of 1st Third Party Protection Audit observations is as follows:

| **Name of Constituents** | **Total Audit Observations** | **Complied** | **% of Compliance** |
|---|---|---|---|
| Powergrid | 54 | 46 | 85.19 |
| NTPC | 16 | 14 | 87.50 |
| NHPC | 1 | 1 | 100.00 |
| DVC | 40 | 26 | 65.00 |
| WB | 68 | 49 | 72.06 |
| Odisha | 59 | 42 | 71.19 |
| JUSNL | 34 | 25 | 73.53 |
| BSPTCL | 16 | 5 | 31.25 |
| IPP (GMR, Sterlite and MPL) | 5 | 5 | 100.00 |

** Pending observations of POWERGRID are related to PLCC problems at other end.*

The substation wise status of compliance are available on ERPC website (Observations include

PLCC rectification/activation which needs a comprehensive plan).

| ITEM NO. C7 : | PAYMENT/RECEIPT STATUS FROM VARIOUS POOL ACCOUNTS IN ER |
|---|---|

**1) RRAS ACCOUNT ----PRESENT STATUS.**

The updated position of Payments to the RRAS Provider(s) from the DSM pool and Payments by the RRAS Provider(s) to the DSM pool as on 02.12.2019 (considering bill up to 10.11.2019) is indicated in ***Annexure – C7.1.*** So far, the amount ₹ 56.30 Cr has been settled under RRAS in ER during FY 2019-20.

**2) FRAS Account ----Present Status.**

The updated position of Payments to the FRAS Provider (i.e NHPC) from the DSM pool and Payments by the FRAS Provider to the DSM pool as on 02.12.2019 (considering bill up to 10.11.2019) is indicated in ***Annexure – C7.1.***So far, the amount **₹ 1.32 Lacs** has been settled under FRAS in ER during FY 2019-20.

**3) AGC Account ----Present Status.**

The updated position of Payments to the AGC Provider (i.eBarh) from the DSM pool and Payments by the AGC Provider to the DSM pool as on 02.12.2019 (considering bill up to 10.11.2019) is indicated in ***Annexure – C7.1.***So far, the amount**₹ 1.46 Lacs** have been settled under FRAS in ER during FY 2019-20.

**4) CONGESTION ACCOUNT - PRESENT STATUS**

No Congestion in ER is imposed since 06.12.2012. The status of congestion charge payment after full settlement is enclosed at ***Annexure – C7.4.***

**5) STATUS OF PSDF**

An amount of **₹ 331.48 Cr** from Deviation and Reactive accounthave been transferred to PSDF after 40th Commercial sub-committee meeting held on 02.07.19. With this the total amount of **₹ 1295.67 Cr** has been transferred to PSDF so far. The break up details of fund transferred to PSDF (till 18.11.19) is enclosed in ***Annexure- C7.5.***

**6) State Transmission Utility Charges and Losses applicable for STOA for FY 2019-20**

| Name of STU | Intra-State Transmission Charges | TRANSMISSION LOSS (For Embedded entities) |
|---|---|---|
| WBSETCL | Rs. 217.85 /MWh[1] | 3.10% |
| DVC | Rs. 143.7 / MWh | 2.68% |
| OPTCL | Rs. 62.5 / MWh | 3.00% |
| JUSNL | * | # |
| BSPTCL | * | # |
| SIKKIM | * | # |

N.B:
1 Intra State Transmission Charges for West Bengal has been changed to Rs. 217.85/MWh from Rs. 80/MWh w.e.f 17.11.19 as per intimation received from West Bengal SLDC vide letter reference no SLDC/HOW/92C/2019-20/879 dated 15.11.19 and mail dated 16.11.19.

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

**State Load Despatch Centre Operating Charges for STOA for FY 2019-20**

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

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

| **ITEM NO. C8 :** | **Performance of Eastern Regional grid during JUL-19 to NOV-19: ERLDC** |
|---|---|

**1) Real time operation:**

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

| | **JUL-18** | **AUG-18** | **SEP-18** | **OCT-18** | **NOV-18** | **JUL-19** | **AUG-19** | **SEP-19** | **OCT-19** |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| **AvgFrq. ( Hz )** | 49.98 | 49.97 | 49.97 | 49.97 | 49.97 | **50.0** | **50.0** | **50.01** | **50.01** |
| **PkDmd (MW)** | 22440 | 22719 | 22190 | 23030 | 20754 | **23401** | **23451** | **23337** | **21759** |
| **Energy Consum. (MU/day)** | 443 | 463 | 454 | 434 | 381 | **461** | **475** | **463** | **415** |
| **ISGS Gen (MU)** | 5376 | 5514 | 5204 | 4974 | 4656 | **5416** | **5518** | **5897** | **5270** |
| **Region Gen (MU)** | 15960 | 15706 | 15046 | 15228 | 13714 | **16760** | **15858** | **16626** | **15347** |
| **% increase in Reg Gen.** | | | | | | **5.0%** | **1.0%** | **10.5%** | **0.8%** |

**2) System Operational Discipline during the period from July 2019 to October 2019**

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

| | JUL-19 | | AUG-19 | | SEP-19 | | OCT-19 | |
|---|---|---|---|---|---|---|---|---|
| | SCH | ACT | SCH | ACT | SCH | ACT | SCH | ACT |
| BSPHCL | **2762** | **2758** | **3198** | **3204** | **2898** | **2845** | **2604** | **2562** |
| JUVNL | **502** | **505** | **496** | **505** | **501** | **500** | **481** | **474** |
| DVC | **-1220** | **-1224** | **-927** | **-930** | **-678** | **-662** | **-453** | **-406** |
| OPTCL | **1103** | **1169** | **1155** | **1305** | **669** | **888** | **337** | **544** |
| WBSETCL | **2174** | **2257** | **2508** | **2589** | **1928** | **1955** | **1345** | **1377** |
| SIKKIM | **38** | **37** | **40** | **40** | **38** | **39** | **40** | **39** |

**ii) Frequency & Voltage**

Frequency profile for the period during **JUL-19 to NOV-19** is given here under. The frequency mostly remained within the allowable range for the entire period

| **Month** | % of time for which frequency | | | |
|---|---|---|---|---|
| | **<49.9** | **49.9-50.05** | **> 50.05** | **IEGC band 49.9-50.05** |
| **JUL-19** | 7.50 | 68.65 | 23.85 | 68.65 |
| **AUG-19** | 7.28 | 72.69 | 20.04 | 72.69 |
| **SEP-19** | 4.58 | 75.24 | 20.18 | 75.24 |
| **OCT-19** | 3.18 | 77.06 | 19.75 | 77.06 |
| **NOV-19** | 4.07 | 73.63 | 22.31 | 73.63 |

**iii) Maximum and minimum voltages recorded at some important 400 kV sub-stations were as follows:**

| | JUL-19 | | AUG-19 | | SEP-19 | | OCT-19 | | NOV-19 | |
|---|---|---|---|---|---|---|---|---|---|---|
| SUB-STATION/ | MAX. | MIN | MAX. | MIN | MAX. | MIN | MAX. | MIN | MAX. | MIN |
| POWER STN. | (KV) | (KV) | (KV) | (KV) | (KV) | (KV) | (KV) | (KV) | (KV) | (KV) |
| **(765 KV) NEW RANCHI** | 793 | 765 | 790 | 762 | 790 | 765 | 792 | 771 | 794 | 770 |
| **MUZAFFARPUR** | 424 | 382 | 417 | 385 | 417 | 389 | 422 | 391 | 425 | 408 |
| **BINAGURI** | 419 | 397 | 419 | 398 | 421 | 401 | 429 | 402 | 416 | 409 |
| **JEERAT** | 423 | 376 | 423 | 381 | 422 | 386 | 423 | 389 | 428 | 389 |
| **MAITHON** | 421 | 394 | 423 | 403 | 424 | 405 | 423 | 398 | 421 | 397 |
| **BIHARSHARIFF** | 421 | 390 | 424 | 396 | 423 | 399 | 420 | 389 | 417 | 388 |
| **JAMSHEDPUR** | 418 | 392 | 413 | 396 | 415 | 397 | 417 | 401 | 420 | 401 |
| **ROURKELA** | 413 | 397 | 414 | 403 | 413 | 406 | 424 | 389 | 426 | 402 |
| **JEYPORE** | 418 | 403 | 421 | 406 | 424 | 409 | 423 | 404 | 415 | 401 |
| **MERAMUNDALI** | 413 | 389 | 417 | 401 | 416 | 403 | 414 | 397 | 424 | 397 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **SASARAM** | 420 | 386 | 415 | 384 | 413 | 385 | 420 | 388 | 424 | 391 |
| **SUBHASHGRAM** | 419 | 367 | 422 | 376 | 420 | 383 | 421 | 383 | 411 | 401 |

**3) Constituent-wise demand met is given below:**

| | | **JUL-18** | **AUG-18** | **SEP-18** | **OCT-18** | **NOV-18** | **JUL-19** | **AUG-19** | **SEP-19** | **OCT-19** |
|---|---|---|---|---|---|---|---|---|---|---|
| **BSPHCL** | AVG MAX DMD(MW) | 4622 | 4669 | 4759 | 4522 | 4095 | 4927 | 5463 | 5075 | 4539 |
| | MU/DAY | 90 | 93 | 94 | 87 | 74 | 93 | 108 | 98 | 86 |
| **JUVNL** | AVG MAX DMD(MW) | 1131 | 1161 | 1155 | 1141 | 1178 | 1219 | 1221 | 1251 | 1213 |
| | MU/DAY | 24 | 24 | 25 | 24 | 25 | 25 | 25 | 25 | 24 |
| **DVC** | AVG MAX DMD(MW) | 2752 | 2630 | 2605 | 2611 | 2695 | 2782 | 2649 | 2628 | 2561 |
| | MU/DAY | 70 | 67 | 65 | 66 | 68 | 71 | 68 | 66 | 65 |
| **ODISHA** | AVG MAX DMD(MW) | 4027 | 4798 | 4516 | 4710 | 4262 | 4162 | 4373 | 4309 | 3850 |
| | MU/DAY | 85 | 103 | 97 | 102 | 88 | 89 | 96 | 99 | 89 |
| **W. BENGAL** | AVG MAX DMD(MW) | 7842 | 8110 | 8053 | 7383 | 6516 | 8351 | 8136 | 7949 | 7129 |
| | MU/DAY | 174 | 156 | 173 | 155 | 127 | 185 | 179 | 174 | 151 |

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

| Region | JUL-19 | | AUG-19 | | SEP-19 | | OCT-19 | |
|---|---|---|---|---|---|---|---|---|
| | SCH | ACT | SCH | ACT | SCH | ACT | SCH | ACT |
| NER | -320 | 246 | 118 | 592 | 79 | 480 | 15 | 382 |
| SR | 860 | 1018 | 37 | 487 | 81 | 472 | 699 | 1187 |
| WR | -1310 | -2178 | -1655 | -2454 | -273 | -1421 | -409 | -1354 |
| NR | 2406 | 2537 | 1938 | 1740 | 2276 | 2454 | 1881 | 1814 |
| TOTAL | **1636** | **1623** | **438** | **365** | **2163** | **1984** | **2187** | **2029** |

**5) Reservoir levels of important hydro stations in ER during JUL-19 to OCT-19 (as on last day of the month) is given below:**

| STATION | MDDL/ FRL | **JUL-19** | **AUG-19** | **SEP-19** | **OCT-19** |
|---|---|---|---|---|---|
| BURLA | 590/630 FT | 599.69 | 623.00 | 630.00 | 629.97 |
| BALIMELA | 1440/ 1516 FT | 1461.80 | 1491.80 | 1512.60 | 1515.30 |
| RENGALI | 109.7/ 123.5 MTR | 111.09 | 121.82 | 123.35 | 124.05 |
| U. KOLAB | 844/ 858 MTR | 849.06 | 853.46 | 856.33 | 857.25 |
| INDRAVATI | 625/ 642 MTR | 633.50 | 640.34 | 641.03 | 640.79 |
| MACHKUND | 2685/ 2750 FT | 2722.50 | 2745.85 | 2748.40 | 2748.60 |

**6) New Element Charging:**

**JUL-19:**

| SL NO | Element Name | Owner | Charging Date | Charging Time | Remarks |
|---|---|---|---|---|---|
| 1 | Unit 2 of Mangdhechu (180MW) | DGCL | 02/07/19 | 12:02 | Synchronised for first time |
| 2 | OPGC #3 (IB TPS stage-II) (660 MW) | OPGC | 04/07/19 | 0:00 | COD |
| 3 | 400 kV Bidhanagar - New Chanditala | WBSETCL | 10/07/19 | 19:36 | LILO of 400kV Bidhanagr-Arambag at New-Chanditala |
| 4 | 400 kV New_Chanditala-Arambag | WBSETCL | 16/07/19 | 14:50 | |
| 5 | 400 KV Patna-NPGC II | PGCIL | 17/07/19 | 20:23 | |
| 6 | 401 KV Patna-NPGC I | PGCIL | 18/07/19 | 17:14 | |
| 7 | 220 kv Dalkhola-Gazole-1 | WBSETCL | 25/07/19 | 19:09 | LILO of 220kV Malda-Dalkhola-DC at Gazole. Only LILO portion is owned by WBSETCL |
| 8 | 220 kv Gazole-Malda-1 | WBSETCL | 25/07/19 | 19:12 | |
| 9 | 220 kv Dalkhola-Gazole-2 | WBSETCL | 25/07/19 | 19:56 | |
| 10 | 220 kv Gazole-Malda-2 | WBSETCL | 25/07/19 | 19:57 | |
| 11 | 160MVA ICT 1 at Gazole | WBSETCL | 25/07/19 | 11:54 | |
| 12 | 160MVA ICT 2 at Gazole | WBSETCL | 26/07/19 | 12:23 | |

**AUG-19:**

| SL NO | Element Name | Owner | Charging Date | Charging Time | Remarks |
|---|---|---|---|---|---|
| 1 | 220 KV Keonjhar(PG)-Keonjhar II | OPTCL | 03-08-2019 | 13:49 | |
| 2 | 220 KV Patna-Khagaulckt II | BGCL | 08-08-2019 | 16:05 | |
| 3 | 220 KV Patna-Khagaulckt III | BGCL | 08-08-2019 | 16:09 | |
| 4 | 500MVA ICT-II at Rajarhat | PGCIL | 15-08-2019 | 18:28 | |
| 5 | OPGC-IV (660MW) | OPGCL | 21-08-2019 | 0:00 | COD |

**SEP-19:**

| SL NO | Element Name | Owner | Charging Date | Charging Time | Remarks |
|---|---|---|---|---|---|
| 1 | 400/220KV 500 MVA ICT - 4 at Biharshariff | PGCIL | 04/09/19 | 18:00 | First time charged with no load at 17:30hrs of 03/09/19 |
| 2 | NPGC #1 (660MW) | NTPC | 06/09/19 | 0:00 | COD |
| 3 | LILO of 220kV Arah-Sasaram(PG)-1 at Nadokhar (Sasaram_new_BSPTCL) | BSPTCL | 08/09/19 | 11:52 | Only LILO portion is owned by BSPTCL |
| 4 | 220 KV Dumka-Govindpur-I | JUSNL | 25/09/19 | 17:35 | |
| 5 | 220 KV Dumka-Govindpur- II | JUSNL | 25/09/19 | 17:35 | |
| 6 | 160 MVA ICT IV at Malda | PGCIL | 29/09/19 | 11:14 | |

**OCT-19: NIL**

**NOV-19:**

| SL NO | Element Name | Owner | Charging Date | Charging Time | Remarks |
|---|---|---|---|---|---|
| 1 | 400KV New Purnea-Gokarno S/C | PGCIL | 10-11-2019 | 11:56 | |
| 2 | 400 KV Farakka -New Purnea S/C | PGCIL | 10-11-2019 | 14:34 | |
| 3 | 765kV/400/33 kV, 1500 MVA ICT3 at Jharsuguda | PGCIL | 27-11-2019 | 12:55 | |
| 4 | 765KV/400/33KV, 1500 MVA ICT4 at Jharsuguda | PGCIL | 23-11-2019 | 14:02 | |

**********

# ANNEXURES

**ANNEXURE – A**

# LIST OF PARTICIPANTS IN THE 42nd ERPC MEETING

Date: 13.12.2019 Venue: Hotel Mansha Regency, Port Blair

**In Chair:** Shri A.B. Rai, Chairperson-ERPC & PCE-cum-Secretary, Energy & Power Department, Govt. of Sikkim.

| Sl. No. | Name S/Shri | Designation | Contact Number e-mail id |
|---|---|---|---|
| **SIKKIM** | | | |
| **1.** | A.B. Rai | Chairperson-ERPC & PCE-cum-Secretary, E&P Dept., Govt. of Sikkim | |
| **2.** | D.T. Bhutia | Director (Accounts) | 9434011169 bhutiadorjee169@yahoo.co.in |
| **3.** | D. Kharel | Chief Engineer(Transmission) | 7797756309 dkharel64@gmail.com |
| **4.** | H.D. Bhutia | SE,SLDC | 9647879822 hissaydorjee44@gmail.com |
| **5.** | N. Tashi | Executive Engineer | 7797672743 namgyaltashi26@gmail.com |
| **6.** | K.B. Kunwar | Ex. Chairperson, ERPC | |
| **BSPTCL** | | | |
| **7.** | Shankar Kumar | Chief Engineer | 7763817721 |
| **8.** | Amar Kumar Mishra | ESE (O &M) | 7763817767 akm.bsptcl@gmail.com |
| **BSHPCL** | | | |
| **9.** | A.K.Sinha | Director(Technical) | 7763813856 dtbspgcl@gmail.com |
| **10.** | Bhaskar Sharma | Advisor(Tech) | 9771496900 bsharma2407@gmail.com |
| **CESC** | | | |
| **11.** | Sandip Pal | Vice President (SO) | 9831054651 sandip.pal@rp_sg.in |
| **12.** | Koushik Banerjee | SM (System Control) | 9831003281 kousik.banerjee@rp-sg.in |
| **BHUTAN** | | | |
| **13.** | D.Chhoedron | Chief Engineer, DoHPS | 0097517974147 dchhoedron@moea.gov.bt |
| **14.** | D.P.Phuntshok | Director, DGPC | 9971260389 dp.phuntshok1856@drukgreen.bt |
| **15.** | Sherab | GM,Bhutan PSO | 97517630925 sherub@bpc.bt |
| **16.** | Kunzang Tobgye | GM, BPC | 97517988127 |
| **17.** | Pema Wangda | SE (O&M), Mandechhu HPS | |
| **DVC** | | | |
| **18.** | S. Halder | Member (Finance) | |
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Date: 12.12.2019 Venue: Hotel Mansha Regency, Port Blair

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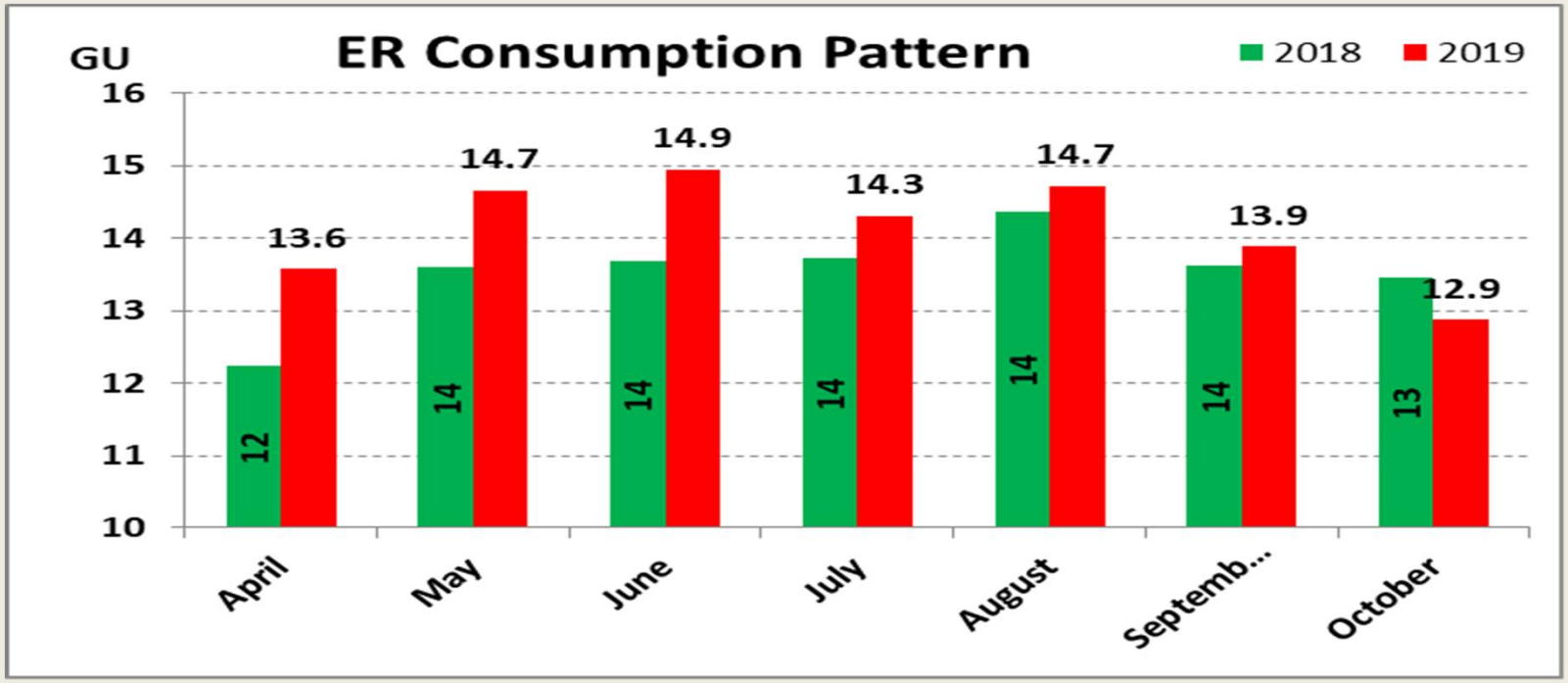
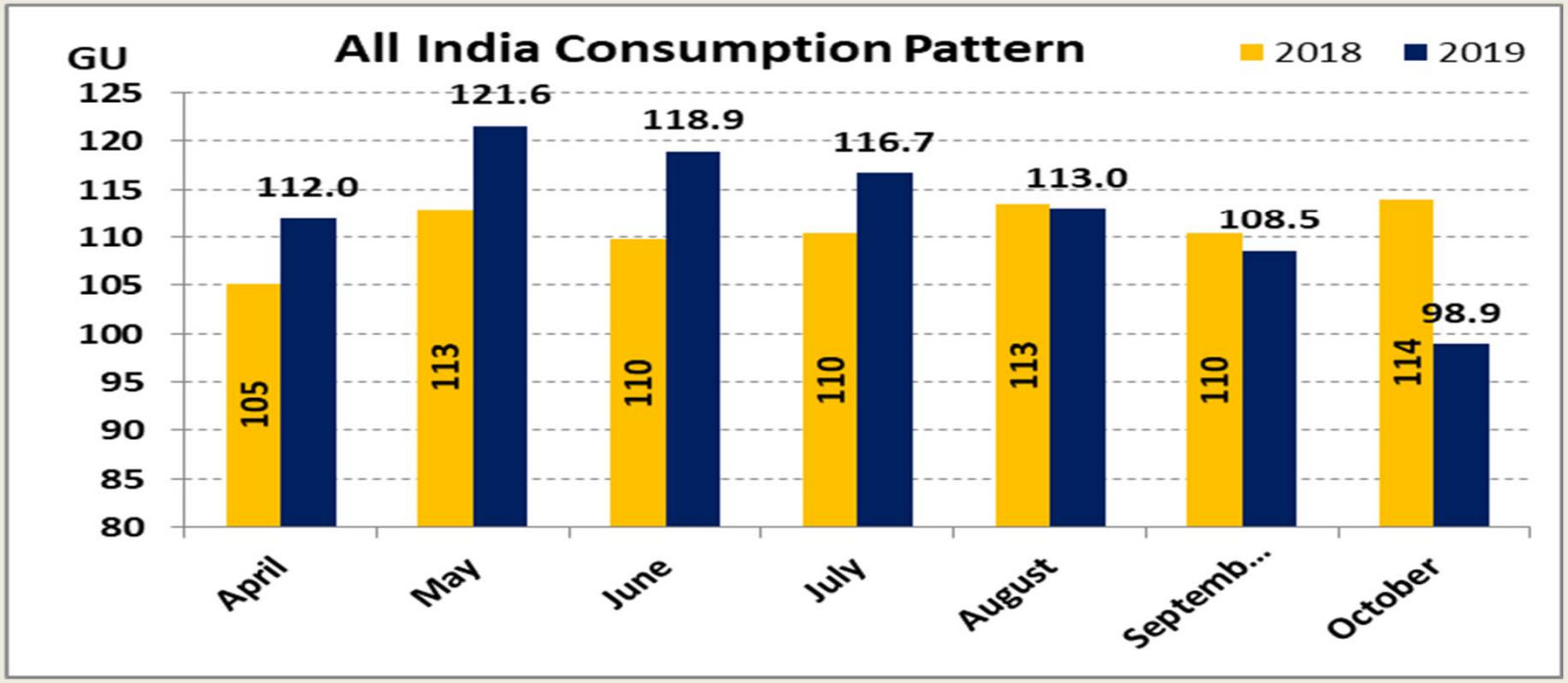
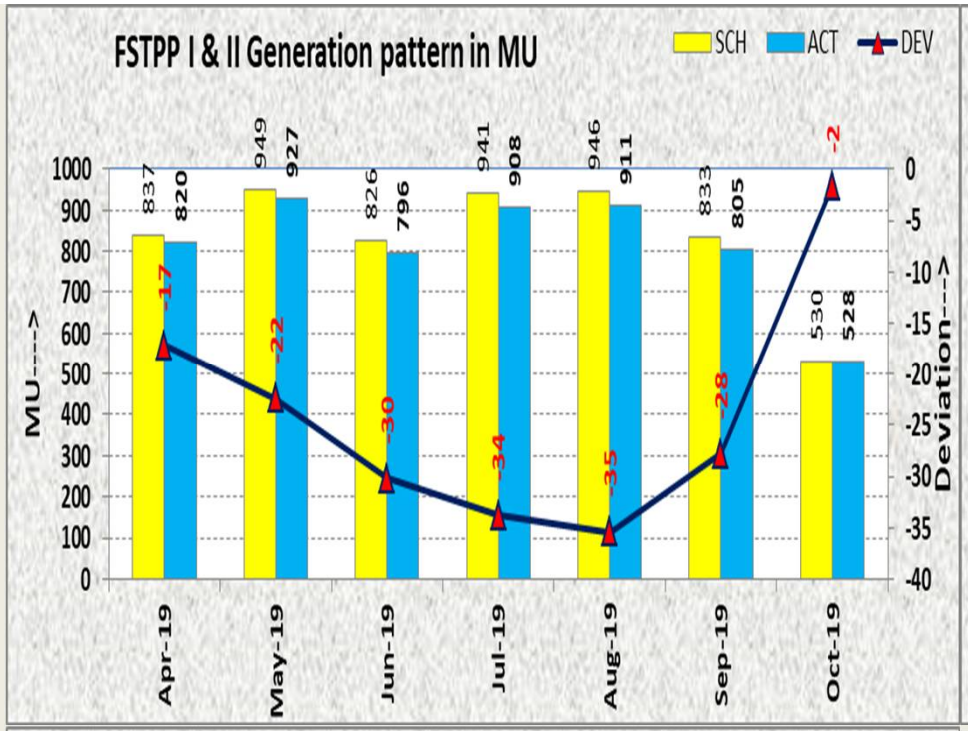

ER Consumption Pattern
GU
2018
2019
16
15
14
13
12
11
10
13.6
14.7
14.9
14.3
14.7
13.9
12.9
12
14
14
14
14
14
13
April
May
June
July
August
Septemb...
October


All India Consumption Pattern
GU
2018
2019
125
120
115
110
105
100
95
90
85
80
112.0
121.6
118.9
116.7
113.0
108.5
98.9
105
113
110
110
113
110
114
April
May
June
July
August
Septemb...
October


FSTPP I & II Generation pattern in MU
SCH
ACT
DEV
MU---->
Deviation--->
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
837
820
-17
949
927
-22
826
796
-30
941
908
-34
946
911
-35
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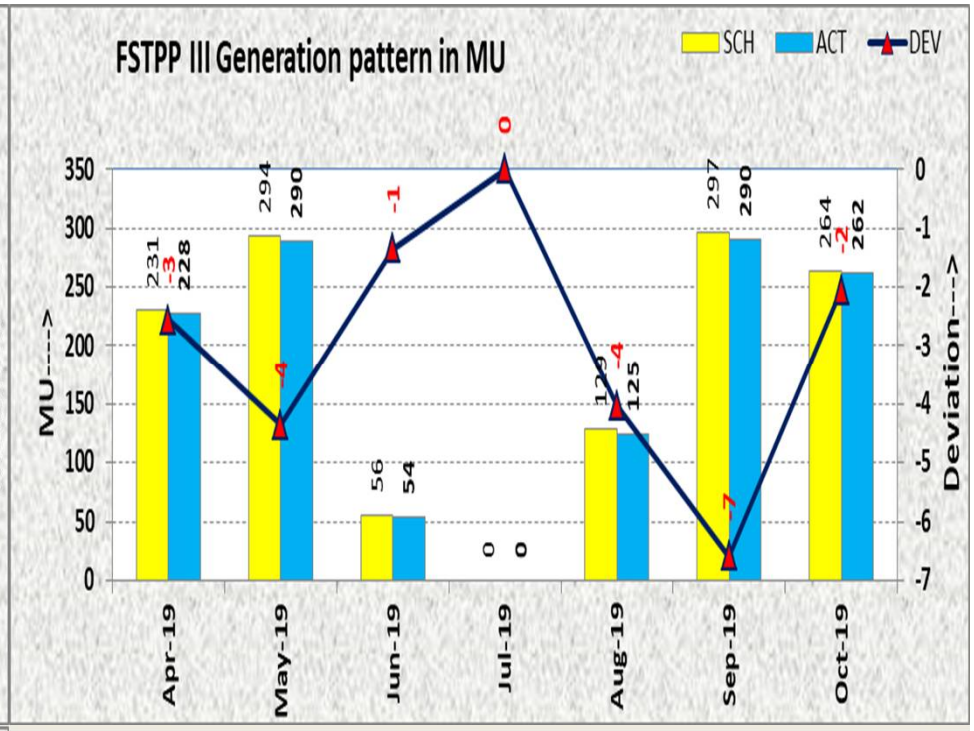
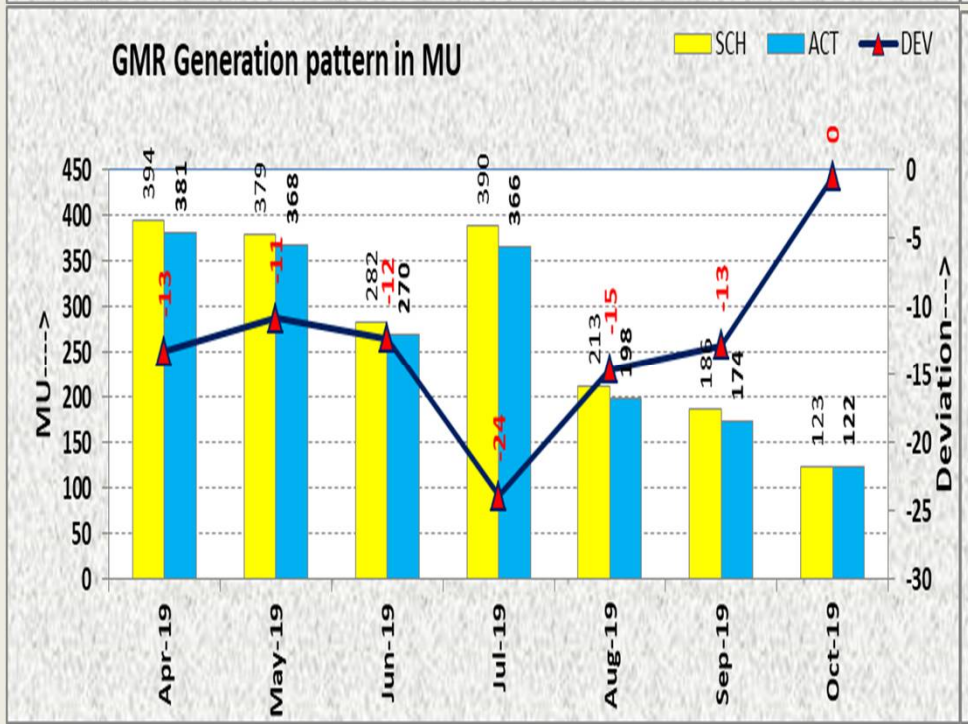
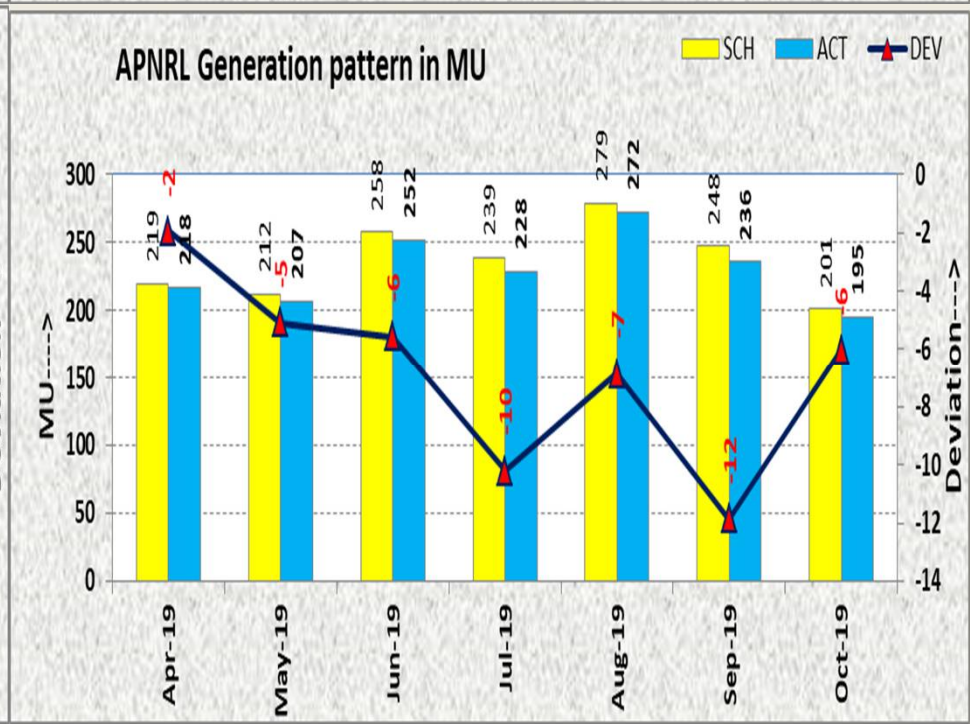
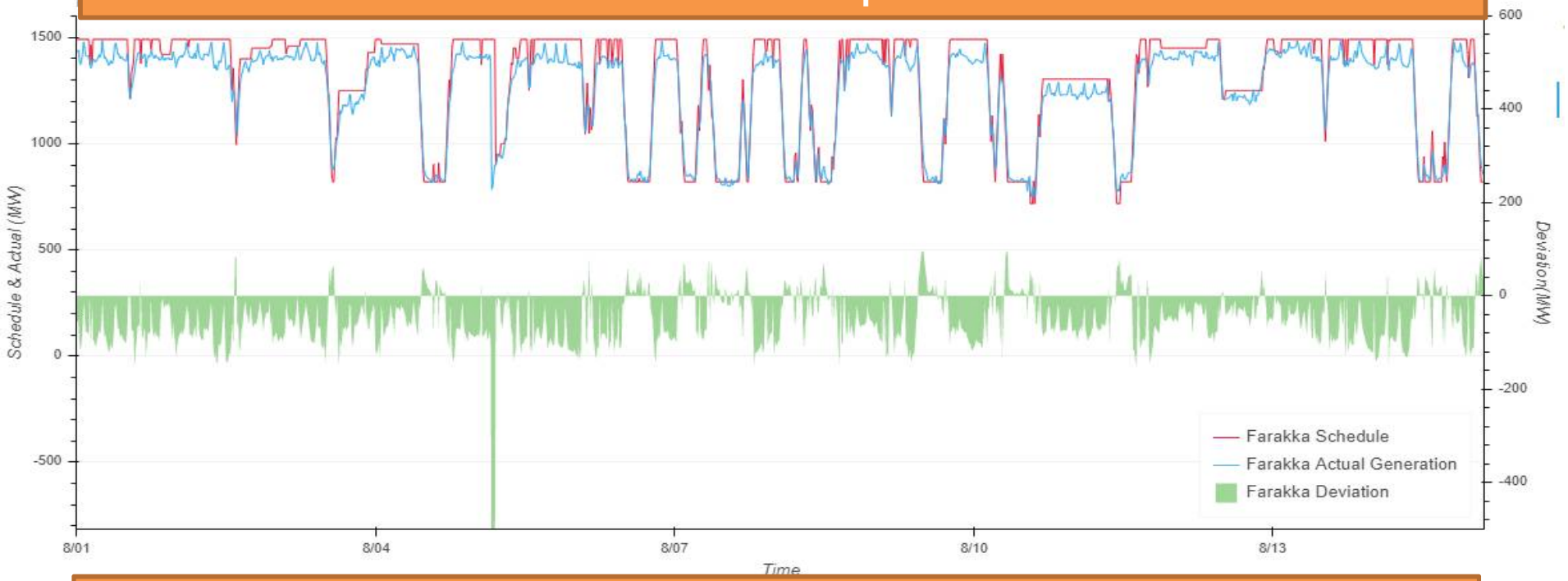
805
-28
530
528
-2


FSTPP III Generation pattern in MU
SCH
ACT
DEV
MU---->
Deviation--->
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
231
228
-3
294
290
-4
56
54
-1
0
0
0
129
125
-4
297
290
-7
264
262
-2

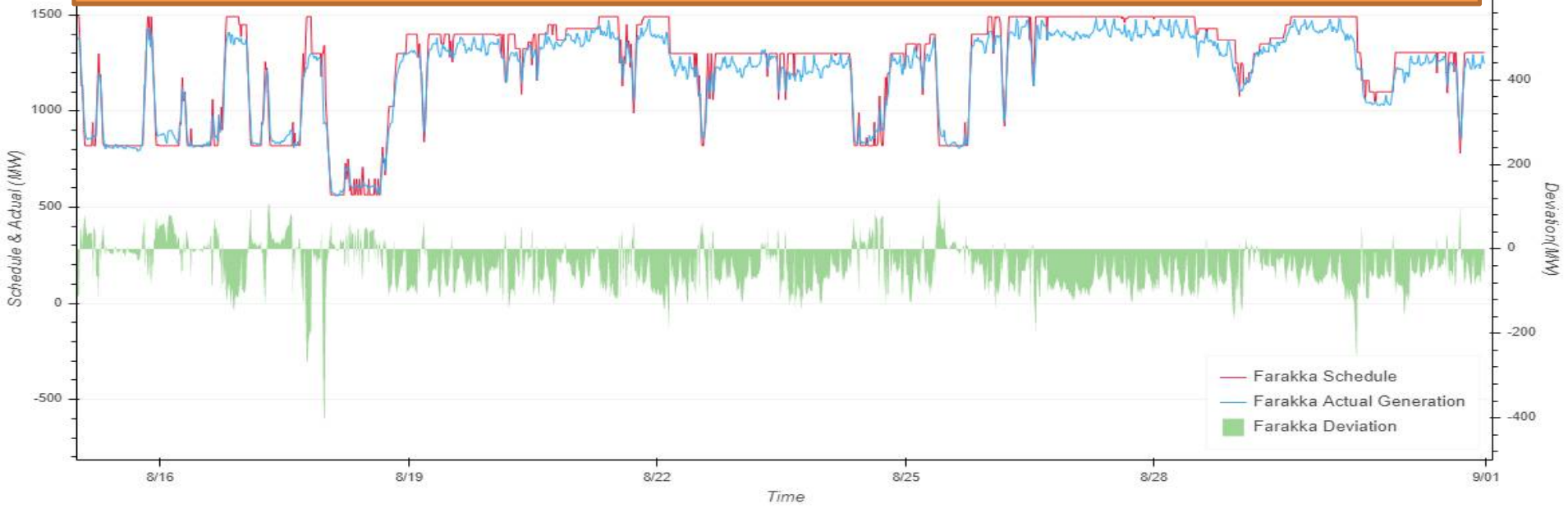

GMR Generation pattern in MU
SCH
ACT
DEV
MU---->
Deviation--->
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
394
381
-13
379
368
-11
282
270
-12
390
366
-24
213
198
-15
185
174
-13
123
122
0


APNRL Generation pattern in MU
SCH
ACT
DEV
MU---->
Deviation--->
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
219
218
-2
212
207
-5
258
252
-6
239
228
-10
279
272
-7
248
236
-12
201
195
-6

## Farakka Schedule Actual & Deviation chart for period of 01-08-2019 to 15-08-2019




## Farakka Schedule Actual & Deviation chart for period of 16-08-2019 to 31-08-2019

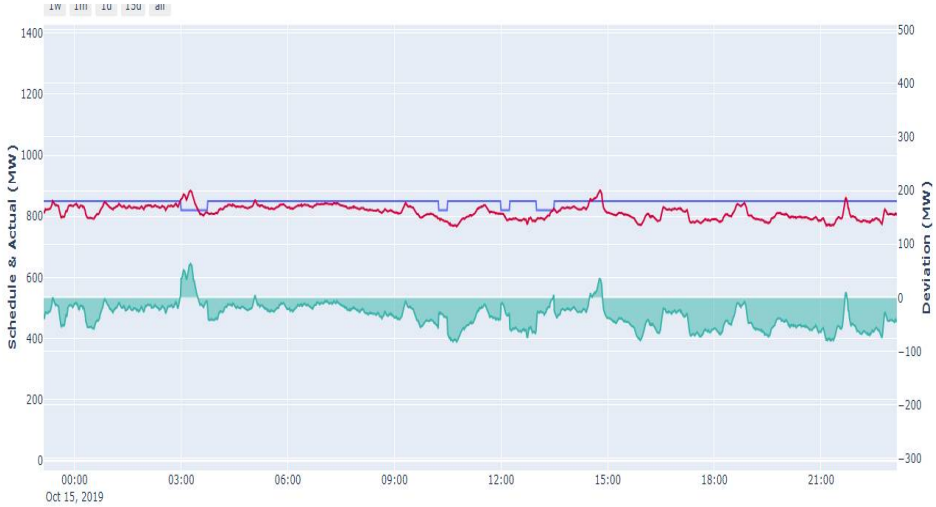


# FSTPP Schedule Actual Deviation for Month of September 2019

# FSTPP I & II Under-injection during peak hours in Month of October

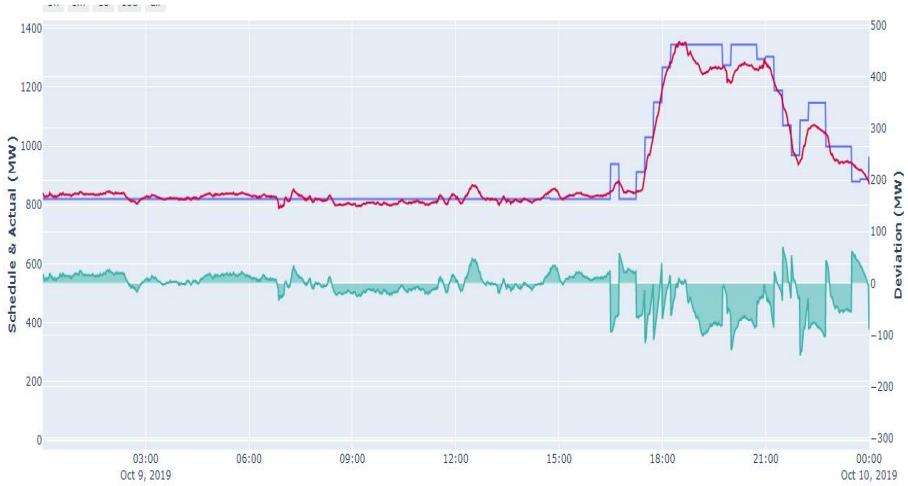
## FSTPP Schedule Actual Deviation 16-Oct-2019


## FSTPP Schedule Actual Deviation 15-Oct-2019



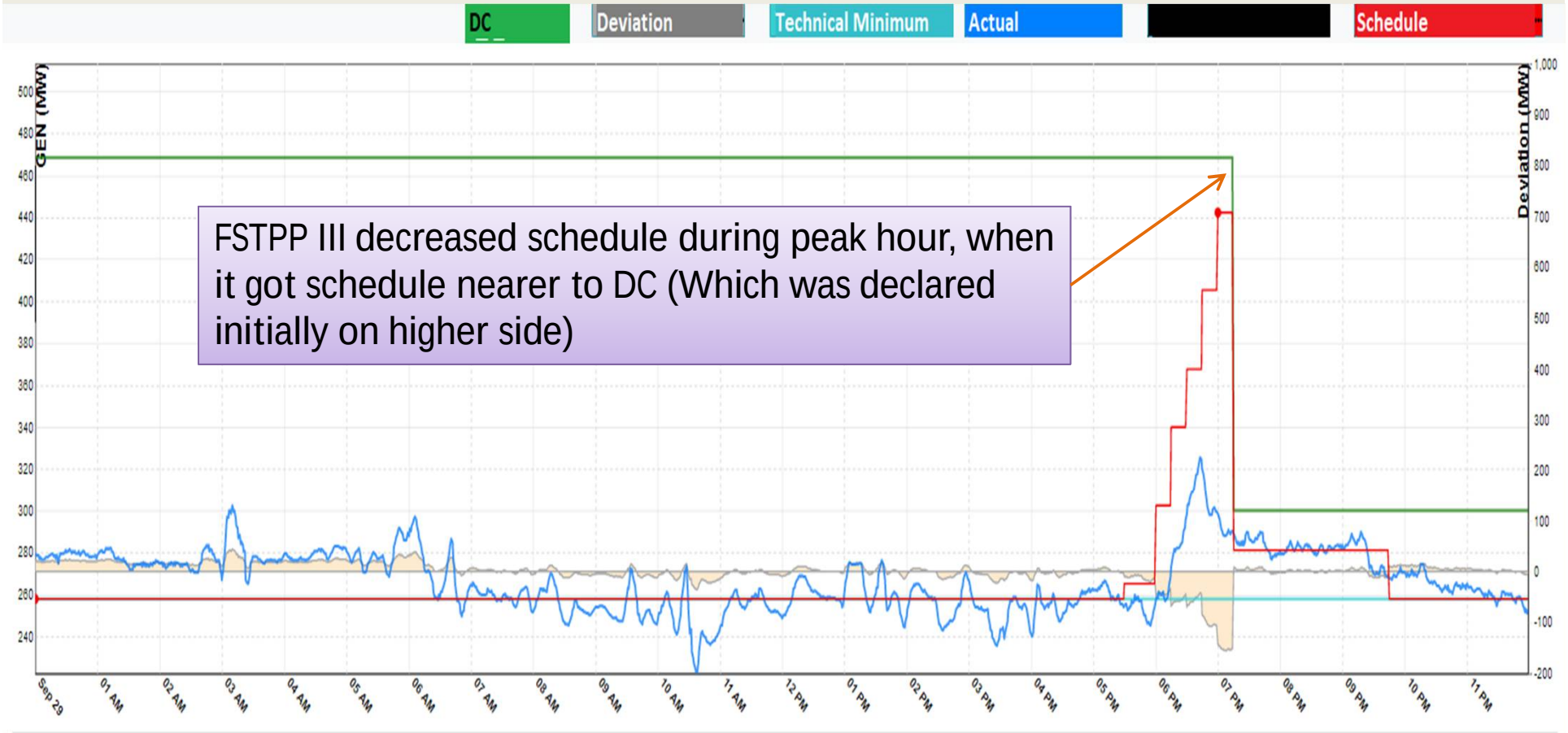

## FSTPP Schedule Actual Deviation 13-Oct-2019


## FSTPP Schedule Actual Deviation 09-Oct-2019

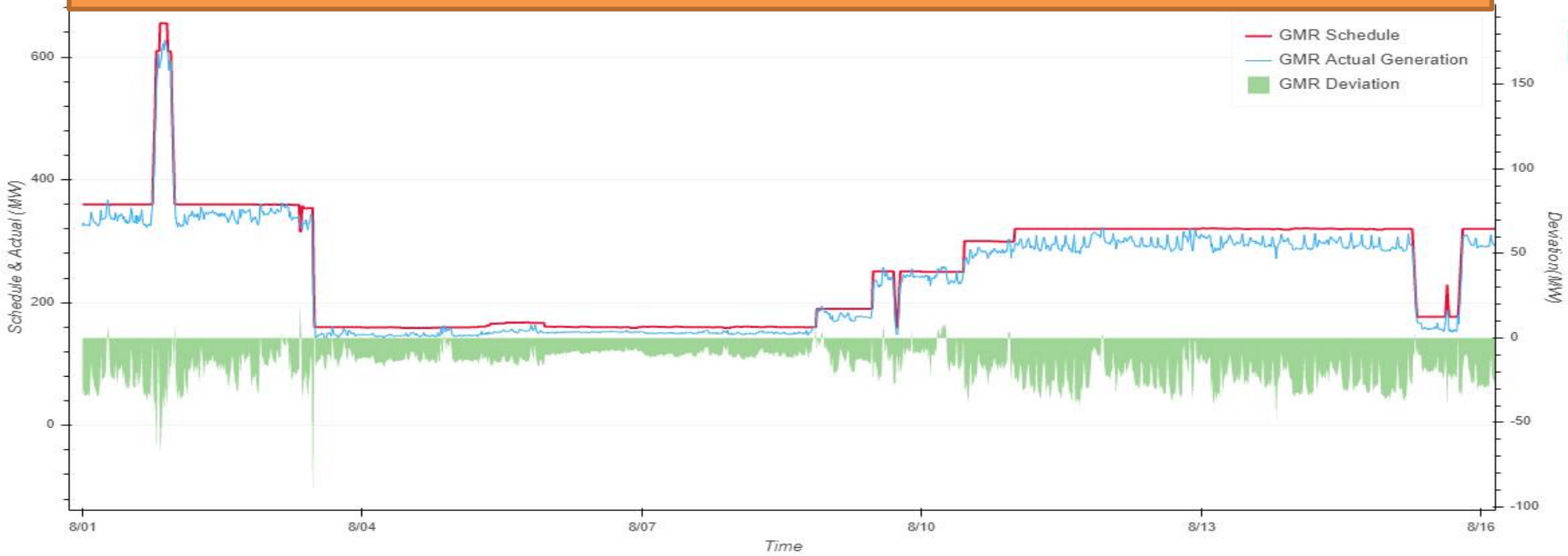



Farakka-I&II Schedule
Farakka-I&II Actual Generation
Farakka-I&II Deviation

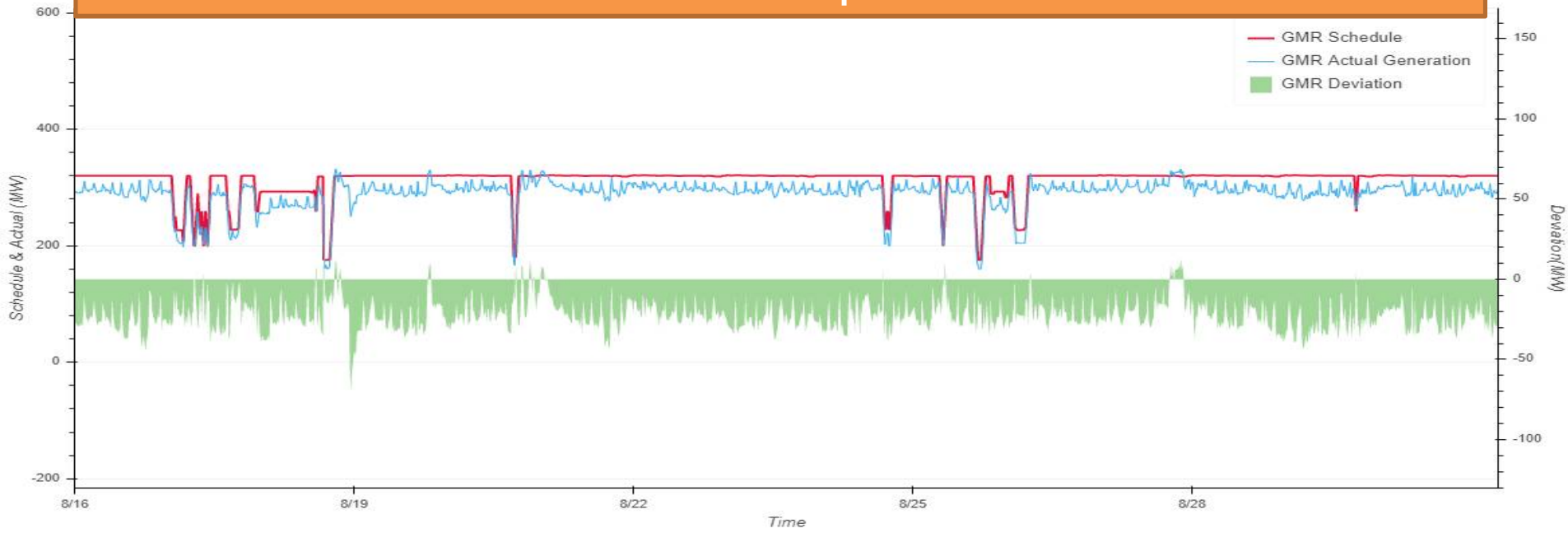
# FSTPP III Under-injection during peak hours on 1st October 2019



## GMR Schedule Actual & Deviation chart for period of 01-08-2019 to 15-08-2019




## GMR Schedule Actual & Deviation chart for period of 16-08-2019 to 31-08-2019



# Elements long outages leading to transmission constraint

- 400KV main bay of Indravati(GR)-Indravati (PG) out of service since 2016 for breaker problem at Indravati(PG). Line was charged through main bay of 125 MVASR B/R breaker on Bus – II. Breaker to be replaced by OPTCL. Timeline of restoration is uncertain – may be updated by OPTCL?

- 400 Kv Purnea – Biharsariff D/C were out since 10/08/18 on tower collapse at 47/0.
- 400 kV Patna – Kisanganj I&II were out since 01/09/18 & 06/07/19 respectively on tower collapse.
- 400 KV Gorakhpur –Motihari (DMTCL) – D/C were out since 13/08/2019 on tower collapse at LOC 27/0.
- 400 KV Barh –Motihari (DMTCL) – D/C were out since 04/09/2019 on tower collapse at LOC 26/0.

## Annexure-V

1. **Participants for 1st Batch (Senior Executives):** ERPC members or equivalent executive as nominated by ERPC members.

| SN | Constituent | Approved no. of participants | Actual Attended | Remarks |
|---|---|---|---|---|
| 1 | Bihar | 2 | 2 (SBPDCL & BSPHCL) | |
| 2 | Jharkhand | 2 | 0 | Nominations of 2 participants were withdrawn due to restriction by Govt. of Jharkhand on foreign visit/tour. |
| 3 | Odisha | 2 | 1- OHPC | Nomination of 1 participant was withdrawn due to severe cyclone "Fani". |
| 4 | West Bengal | 2 | 0 | Nominations of 2 participants were withdrawn at the last juncture. |
| 5 | Sikkim | 1 | 1 | |
| 6 | DVC | 1 | 1 | |
| 7 | ERPC | 1 | 2 | Two numbers standby participants were nominated but one officer has to cancel the tour at last moment due to unavoidable circumstances. |
| 8 | ERLDC | 1 | 1 | |
| 9 | NLDC | 1 | 1 | |
| 10 | CEA | 1 | 1 | |
| 11 | MoP, GoI | 1 | 1 | |
| 12 | PTC | | 1 | One executive was nominated to co-ordinate for the senior batch. |
| **TOTAL** | | **15** | **12** | |

2. **Participants for 2nd Batch (Middle level Executives):** TCC/CCM members as nominated by ERPC members.

| SN | Constituent | Approved no. of participants | Actual Attended | Remarks |
|---|---|---|---|---|
| 1 | Bihar | 3 | 1 (SBPDCL) | Nominations of 2 participants from BSPTCL was not received till last moment. |
| 2 | Jharkhand | 2 | 0 | JUVNL/JUSNL could not nominate 2 participants due to restriction by Govt. of Jharkhand on foreign visit/tour. |
| 3 | Odisha | 3 | 1- OPTCL, 1-GRIDCO, 1-SLDC | |
| 4 | West Bengal | 3 | 0 | Nomination from DPL was not received, so 1 participants from WBPDCL was nominated. |

| | | | | |
|---|---|---|---|---|
| | | | | Nominations of 2 participants from WBSEDCL and 1 from WBPDCL were withdrawn at the last juncture. |
| 5 | Sikkim | 1 | 3 | Two additional participants were nominated against the vacant seats of JUVNL/JUSNL. |
| 6 | DVC | 1 | 0 | Nomination of 1 participant was not received till last moment. |
| 7 | ERPC | 2 | 2 | |
| 8 | ERLDC | | 1 | One additional participants was nominated against the vacant seats of JUVNL/JUSNL. |
| **TOTAL** | | **15** | **10** | |

**Annexure-X**

| Task/ Works performed by ERPC during AUGUST, 2019 | | |
|---|---|---|
| Sl. No. | Period | Date of Report |
| 1 | DSM, RRAS Accounts 170619-230619(Revision-I) | 02.08.2019 |
| 2 | DSM Account 240619-300619(Revision-I) | 02.08.2019 |
| 3 | DSM Account 010719-070719(Revision-I) | 02.08.2019 |
| 4 | Progress Report-June 2019 | 02.08.2019 |
| 5 | REA July 2019 | 05.08.2019 |
| 6 | AS-3 format of MPL from 16.05.2019-15.08.2019 | 05.08.2019 |
| 7 | DC-MPL-July 2019 | 06.08.2019 |
| 8 | DC- Teesta III – July 2019 | 06.08.2019 |
| 9 | VAR Account 150719-210719 | 06.08.2019 |
| 10 | Bilateral REA for July -2019 | 06.08.2019 |
| 11 | DSM, RRAS, FRAS & SCED Accounts 150719-210719 & RRAS 080719-140719(Revision-I) | 06.08.2019 |
| 12 | REA Bhutan July-19 | 08.08.2019 |
| 13 | RTA July-2019 | 09.08.2019 |
| 14 | DSM, RRAS, FRAS & SCED Accounts 220719-280719 & Revised RRAS A/c 150719-210719 | 14.08.2019 |
| 15 | Revised AS-3 format of Kahalgaon STPP 16.07.19-15.08.19 | 14.08.2019 |
| 16 | AS-3 Format 16.08.19-15.09.19 | 14.08.2019 |
| 17 | VAR Account 220719-280719 | 14.08.2019 |
| 18 | TSTPP-I Re-allocation of share w.e.f 24.08.2019 | 23.08.2019 |
| 19 | BRBCL Re-allocation of share w.e.f 26.08.2019 | 23.08.2019 |
| 20 | DSM Account 220719-280719(Revision-I) | 26.08.2019 |
| 21 | DSM, RRAS, FRAS & SCED Account 290419-040819 | 26.08.2019 |
| 22 | VAR Account 290719-040819 | 26.08.2019 |
| 23 | Annual Report 2018-19 | 27.08.2019 |
| 24 | DSM, RRAS & FRAS Account 050819-110819 | 30.08.2019 |
| 25 | SCED Account 050819-110819 | 30.08.2019 |
| 26 | MangdechuHEP,Bhutan share allocation w.e.f 01.09.2019 | 30.08.2019 |
| 27 | URS July-19 | 30.08.2019 |
| 28 | VAR Account 050819-110819 | 30.08.2019 |

| Task/ Works performed by ERPC during SEPTEMBER, 2019 | | |
|---|---|---|
| Sl. No. | Period | Date of Report |
| 1 | DSM Account 050819-110819(Revision-I) | 02.09.2019 |
| 2 | RTA August-2019 | 04.09.2019 |
| 3 | REA August 2019 | 04.09.2019 |
| 4 | DC-MPL-August 2019 | 04.09.2019 |
| 5 | Nabinagar STPP share allocation w.e.f 06.09.2019 | 04.09.2019 |
| 6 | Bilateral REA for August -2019 | 05.09.2019 |
| 7 | AS-3 format of NPGC from 06.09.19-15.09.19 | 05.09.2019 |
| 8 | DC- Teesta III – August 2019 | 05.09.2019 |
| 9 | Progress Report-July 2019 | 05.09.2019 |
| 10 | DSM Account 010419-070419(Revision-III) | 09.09.2019 |
| 11 | DSM Account 080419-140419(Revision-II) | 09.09.2019 |
| 12 | DSM Account 150419-210419(Revision-I) | 09.09.2019 |
| 13 | REA Bhutan August-19 | 09.09.2019 |
| 14 | DSM, RRAS & FRAS Account 120819-180819 | 11.09.2019 |
| 15 | SCED Account 120819-180819 | 11.09.2019 |
| 16 | VAR Account 120819-180819 | 11.09.2019 |
| 17 | AS-3 Format 16.09.19-15.10.19 | 12.09.2019 |
| 18 | RTDA for the month of January-19, February-19 & March-19 & Adjustment of NPGC_Infirm | 12.09.2019 |
| 19 | DSM, RRAS, FRAS & AGC Account 190819-250819 | 17.09.2019 |
| 20 | SCED Account 190819-250819 | 17.09.2019 |
| 21 | VAR Account 190819-250819 | 17.09.2019 |
| 22 | FARAKKA-III Re-allocation of share w.e.f 27.09.2019 | 26.09.2019 |

| Task/ Works performed by ERPC during OCTOBER, 2019 | | |
|---|---|---|
| Sl. No. | Period | Date of Report |
| 1 | URS Augsut-19 | 01.10.2019 |
| 2 | DSM, RRAS, FRAS & AGC Accounts 260819-010919 | 03.10.2019 |
| 3 | SCED Account 260819-010919 | 03.10.2019 |
| 4 | REA September 2019 | 03.10.2019 |
| 5 | DC-MPL-September 2019 | 03.10.2019 |
| 6 | DC- Teesta III – September 2019 | 03.10.2019 |
| 7 | VAR Account 260819-010919 | 03.10.2019 |
| 8 | Bilateral REA for September -2019 | 04.10.2019 |
| 9 | REA Bhutan September-19 | 04.10.2019 |
| 10 | RTA for September-2019 | 09.10.2019 |
| 11 | Progress Report-August 2019 | 09.10.2019 |
| 12 | Compensation Statement for May-19, June-19 & July-19 | 10.10.2019 |
| 13 | DSM, RRAS, FRAS & AGC Accounts 020919-080919 | 11.10.2019 |
| 14 | SCED Account 020919-080919 | 11.10.2019 |
| 15 | VAR Account 020919-080919 | 11.10.2019 |
| 16 | AS-3 Format 16.10.19-15.11.19 | 14.10.2019 |
| 17 | DSM, RRAS, FRAS & AGC Accounts 090919-150919 | 15.10.2019 |
| 18 | SCED Account 090919-150919 | 15.10.2019 |
| 19 | VAR Account 090919-150919 | 15.10.2019 |
| 20 | Revised Compensation Statement for MPL for June-19 & July-19 | 16.10.2019 |
| 21 | VAR Account 160919-220919 | 16.10.2019 |
| 22 | DSM, RRAS, FRAS & AGC Account 160919-220919 | 16.10.2019 |
| 23 | SCED Account 160919-220919 | 16.10.2019 |
| 24 | RTA July-2017(Rev-III), August-2017(Rev-II) & September-2017(Rev-I) | 16.10.2019 |
| 25 | RTA October-2017(Rev-I), November-2017(Rev-I) & December-2017(Rev-I) | 16.10.2019 |
| 26 | FARAKKA-III Re-allocation of share w.e.f 19.10.2019 on allocation of 25 MW to Assam. | 18.10.2019 |
| 27 | RTA January'18(Rev-II), February'18(Rev-I) & March'18(Rev-I) | 18.10.2019 |
| 28 | DSM, RRAS, FRAS & AGC Accounts 230919-290919 | 22.10.2019 |
| 29 | SCED Account 230919-290919 | 22.10.2019 |
| 30 | Revised RTA for the period April'2018 to March'2019 | 22.10.2019 |
| 31 | Revised RTA for the period April'2019 to September'2019 | 22.10.2019 |
| 32 | Revised RTDA for the month of February'2019 | 22.10.2019 |
| 33 | VAR Account 230919-290919 | 22.10.2019 |
| 34 | Rev of Bilateral Transaction in Sept,19 | 23.10.2019 |
| 35 | VAR Account 300919-061019 | 31.10.2019 |
| 36 | Progress Report-September 2019 | 31.10.2019 |
| 37 | DSM, RRAS, FRAS & AGC 300919-061019 & Dev of Bhutan Power of Sept'19 | 31.10.2019 |
| 38 | SCED Account 300919 | 31.10.2019 |

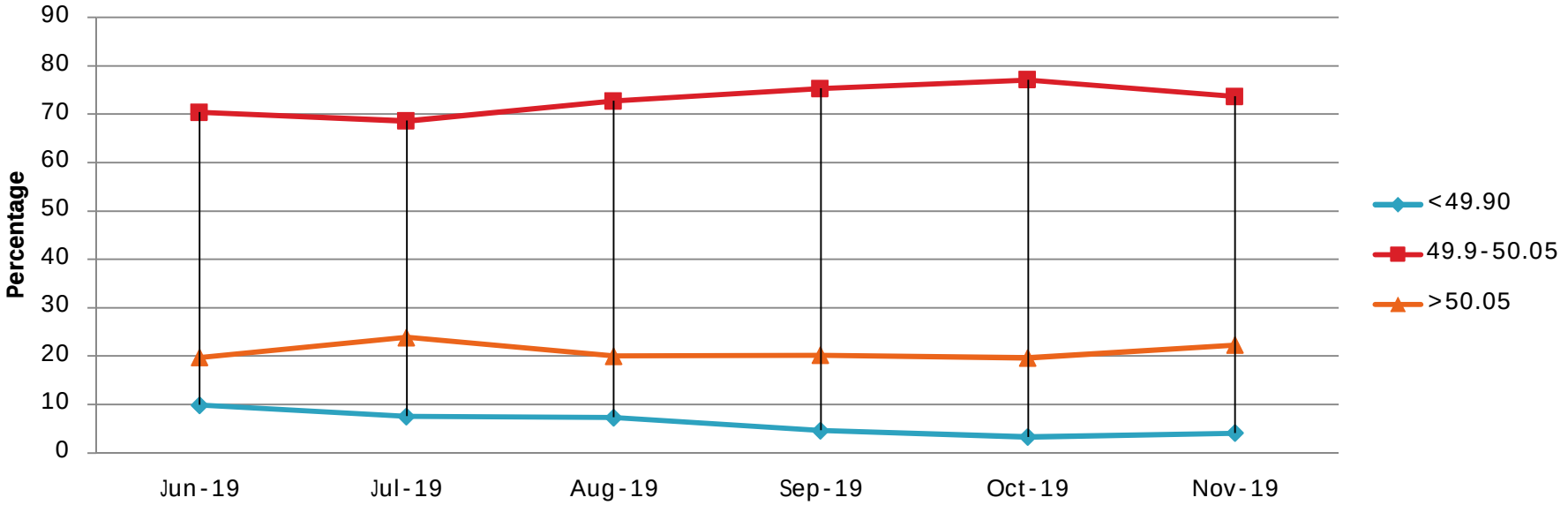
| Task/ Works performed by ERPC during NOVEMBER, 2019 | | |
|---|---|---|
| Sl. No. | Period | Date of Report |
| 1 | RTA for September-2019(Rev-II) | 05.11.2019 |
| 2 | RTA for October-2019 | 05.11.2019 |
| 3 | DSM, RRAS, FRAS & AGC Account 071019-131019 | 05.11.2019 |
| 4 | RRAS Account 010719-110819 & 260819-290919(MPL) | 05.11.2019 |
| 5 | REA October 2019 | 05.11.2019 |
| 6 | DC-MPL-October 2019 | 05.11.2019 |
| 7 | DC- Teesta III – October 2019 | 05.11.2019 |
| 8 | VAR Account 071019-131019 | 05.11.2019 |
| 9 | Bilateral REA for October -2019 | 05.11.2019 |
| 10 | REA Bhutan October-19 | 07.11.2019 |
| 11 | DSM, RRAS, FRAS & AGC Account 141019-201019 | 08.11.2019 |
| 12 | DSM, RRAS, FRAS & AGC Account 211019-271019 | 08.11.2019 |
| 13 | VAR Account 141019-201019 | 08.11.2019 |
| 14 | VAR Account 211019-271019 | 08.11.2019 |
| 15 | AS-3 Format 16.11.19-15.12.19 | 13.11.2019 |
| 16 | DSM, RRAS, FRAS & AGC A/c 281019-031119 & Dev of Bhutan Power of Oct'19 | 15.11.2019 |
| 17 | SCED Account 120819-180819(Rev-I) & 190819-250819(Rev-I) | 15.11.2019 |
| 18 | RRAS Account 120819-250819 & 300919-271019(MPL) | 15.11.2019 |
| 19 | DSM & RRAS Account 290719-040819(Revision-I) | 15.11.2019 |
| 20 | DSM Account 050819-110819(Revision-II) | 15.11.2019 |
| 21 | DSM Account 300919-061019(Revision-I) | 15.11.2019 |
| 22 | VAR Account 281019-031119 | 15.11.2019 |
| 23 | DSM, RRAS, FRAS & AGC Account 041119-101119 | 26.11.2019 |
| 24 | DSM Account 220419-280419(Revision-I) | 26.11.2019 |
| 25 | DSM Account 290419-050519(Revision-I) | 26.11.2019 |
| 26 | Progress Report: October 2019 | 27.11.2019 |
| 27 | Revised RTA for the period April'19 to September'19(Rev-II) | 28.11.2019 |
| 28 | RTA for October'2019(Rev-I) | 28.11.2019 |

| List of Meetings / Workshops held during AUGUST, 2019 | | | |
|---|---|---|---|
| Sl. No. | Description | Date | Venue |
| 1 | Meeting on Nabinagar Issues | 02.08.2019 | ERPC, Kolkata |
| 2 | Meeting with Transmission Licensees | 02.08.2019 | ERPC, Kolkata |
| 3 | OCC Shutdown Meeting | 08.08.2019 | ERLDC, Kolkata |
| 4 | Special Meeting on S/d of 400 kV Farakka -Gokarno Line II | 08.08.2019 | ERPC, Kolkata |
| 5 | 160th OCC Meeting | 09.08.2019 | ERPC, Kolkata |
| 6 | Meeting with CPWD | 09.08.2019 | ERPC, Kolkata |
| 7 | 2nd Meeting on S/d of 400 kV Farakka -Gokarno Line II | 14.08.2019 | ERPC, Kolkata |
| 8 | 82nd PCC Meeting | 19.08.2019 | ERPC, Kolkata |
| 9 | 41st TCC Meeting | 26.08.2019 | Kochi |
| 10 | 41st ERPC Meeting | 27.08.2019 | Kochi |

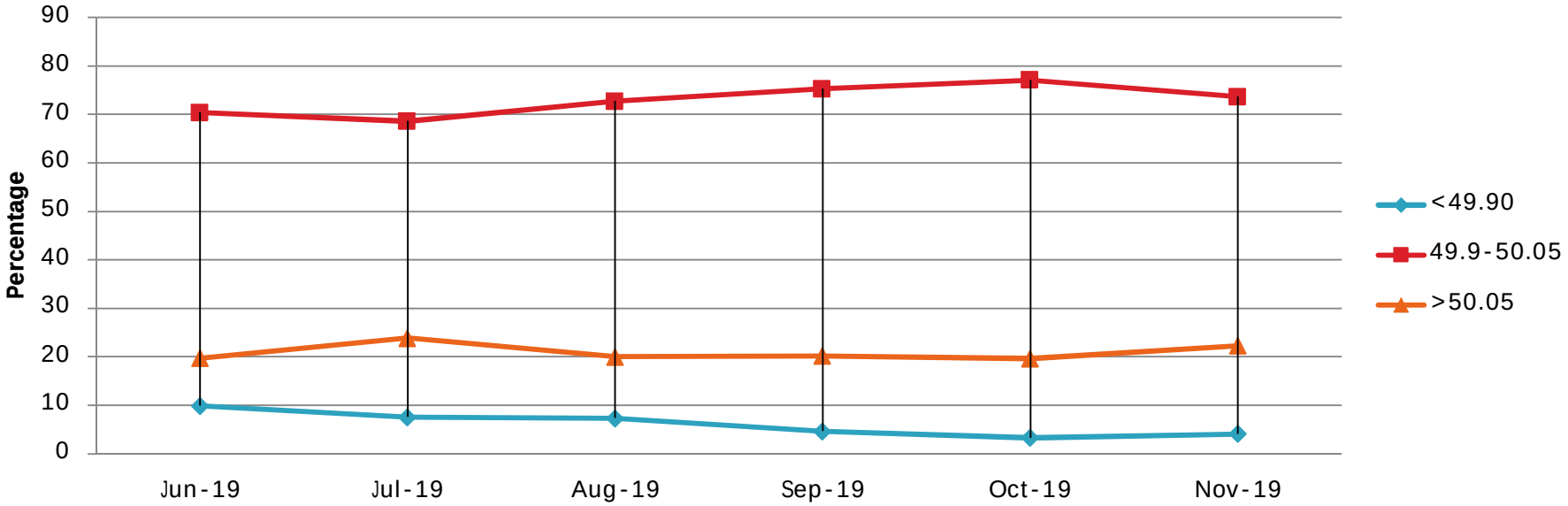
| List of Meetings / Workshops held during SEPTEMBER, 2019 | | | |
|---|---|---|---|
| **Sl. No.** | **Description** | **Date** | **Venue** |
| 1 | Simulator Training | 02.09.2019 to 06.09.2019 | BkTPS, WBPDCL |
| 2 | Special Meeting on Connection of U#4 (660 MW) of OPGC to STU N/W of Odisha | 05.09.2019 | ERPC, Kolkata |
| 3 | Celebration of Hindi week | 13.09.2019 to 19.09.2019 | ERPC, Kolkata |
| 4 | OCC Shutdown Meeting | 16.09.2019 | ERLDC, Kolkata |
| 5 | Meeting on Coal Issues | 18.09.2019 | ERPC, Kolkata |
| 6 | 161st OCC Meeting | 20.09.2019 | Barh STPS, NTPC |
| 7 | Special Meeting on Mangdechu HEP | 25.09.2019 | ERPC, Kolkata |
| 8 | Meeting with CPWD | 26.09.2019 | ERPC, Kolkata |
| 9 | 83rd PCC Meeting | 27.09.2019 | ERPC, Kolkata |
| 10 | Hindi Workshop | 30.09.2019 | ERPC, Kolkata |

| List of Meetings / Workshops held during OCTOBER, 2019 | | | |
|---|---|---|---|
| **Sl. No.** | **Description** | **Date** | **Venue** |
| 1 | OCC Shutdown Meeting | 18.10.2019 | ERLDC, Kolkata |
| 2 | Meeting with NPTI | 21.10.2019 | ERPC, Kolkata |
| 3 | 162nd OCC Meeting | 22.10.2019 | ERPC, Kolkata |
| 4 | 84th PCC Meeting | 23.10.2019 | ERPC, Kolkata |
| 5 | TeST Meeting of ERPC | 24.10.2019 | ERPC, Kolkata |
| 6 | 1st U-NMS Meeting | 24.10.2019 | ERPC, Kolkata |
| 7 | 2nd OPGW Provisioning Technical Committee Meeting | 24.10.2019 | ERPC, Kolkata |
| 8 | 3rd Committee Mtg. on Tr. Availability | 24.10.2019 | ERPC, Kolkata |
| 9 | Meeting related to shutdown of ICT at Maithon | 25.10.2019 | ERPC, Kolkata |

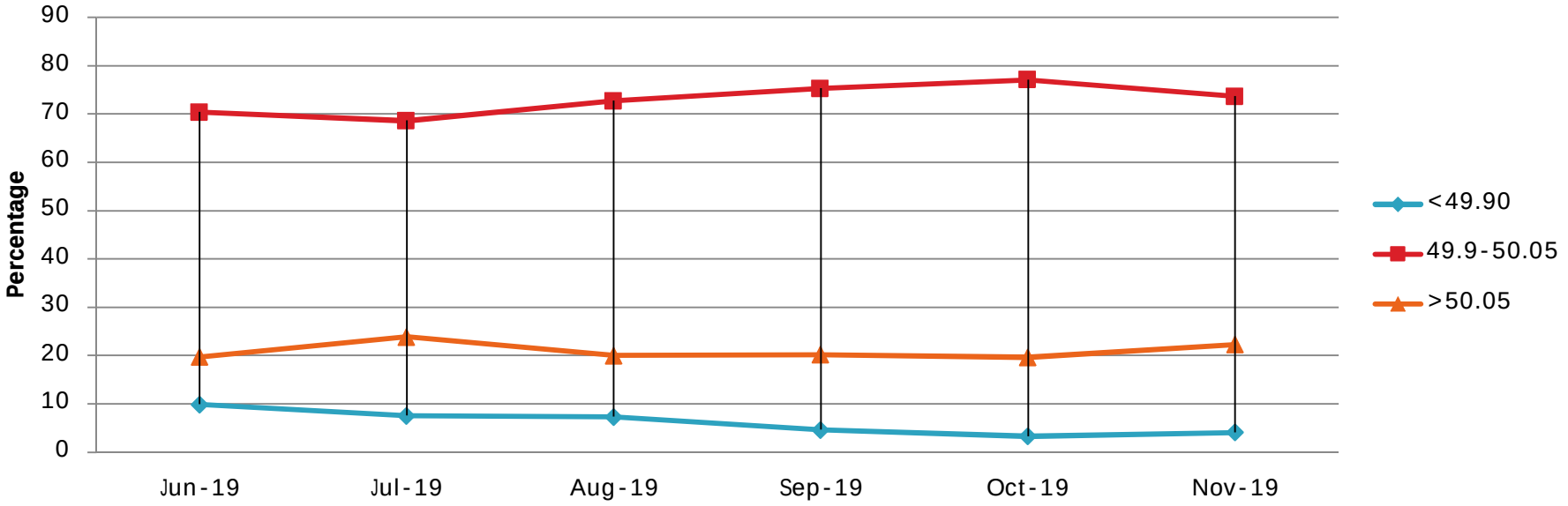
| List of Meetings / Workshops held during NOVEMBER, 2019 | | | |
|---|---|---|---|
| **Sl. No.** | **Description** | **Date** | **Venue** |
| 1 | Meeting on NVVN Issue | 07.11.2019 | ERPC, Kolkata |
| 2 | OCC Shutdown Meeting | 13.11.2019 | ERLDC, Kolkata |
| 3 | 163rd OCC Meeting | 15.11.2019 | Pride Ananya Resort, Puri |
| 4 | Training Programme for Power System Engineers of ER Constituents | 18.11.2019 to 22.11.2019 | AIPM, Kolkata |
| 5 | 85th PCC Meeting | 19.11.2019 | ERPC, Kolkata |
| 6 | Meeting on OPGCIssue | 20.11.2019 | ERPC, Kolkata |
| 7 | 2ndTeST Meeting of ERPC | 26.11.2019 | ERPC, Kolkata |
| 8 | 41st Commercial Committee Meeting | 27.11.2019 | ERPC, Kolkata |
| 9 | Review Meeting for National Conference | 29.11.2019 | NPTI, Durgapur |
| 10 | Hindi Committee Meeting | 29.11.2019 | ERPC, Kolkata |




| | WBSETCL | | | BSPHCL | | | DVC | | |
|---|---|---|---|---|---|---|---|---|---|
| | Sep'19 | Oct'19 | Nov'19 | Sep'19 | Oct'19 | Nov'19 | Sep'19 | Oct'19 | Nov'19 |
| Dev(MWH) | -22628 | -32261 | -45,437 | 48850 | 41550 | 18923 | -17185 | -46951 | -4492 |
| Total DSM Payable/Receivable(Lakhs) | -548.78092 | -821.61155 | -965.63232 | -376.02782 | 97.15292 | -52.91485 | -504.47096 | -1672.3314 | -159.38015 |
| Per Unit Rate(Rs.) | 2.43 | 2.55 | 2.13 | 0.77 | 0.23 | 0.28 | 2.94 | 3.56 | 3.55 |
| Avg ACP(Rs.) | 2.74 | 2.71 | 2.86 | 2.74 | 2.71 | 2.86 | 2.74 | 2.71 | 2.86 |




| | JUVNL | | SIKKIM | | | TEESTA-V | | |
|---|---|---|---|---|---|---|---|---|
| | Oct'19 | Nov'19 | Sep'19 | Oct'19 | Nov'19 | Sep'19 | Oct'19 | Nov'19 |
| Dev(MWH) | 6866 | 8600 | -1266 | 1470 | -1396 | 8879 | 9665 | 5780 |
| Total DSM Payable/Receivable(Lakhs) | 35.31063 | 120.48838 | -39.92644 | 9.91584 | -45.49299 | 210.35456 | 232.73029 | 130.36692 |
| Per Unit Rate(Rs.) | 0.51 | 1.40 | 3.15 | 0.67 | 3.26 | 2.37 | 2.41 | 2.26 |
| ECR(Rs.) | | | | | | 1.16 | 1.16 | 1.16 |
| Avg ACP(Rs.) | 2.71 | 2.86 | 2.74 | 2.71 | 2.86 | 2.74 | 2.71 | 2.86 |




| | FSTPP I&II | | | KHSTPP II | | | APNRL | | |
|---|---|---|---|---|---|---|---|---|---|
| | Sep'19 | Oct'19 | Nov'19 | Sep'19 | Oct'19 | Nov'19 | Sep'19 | Oct'19 | Nov'19 |
| Dev(MWH) | -22108 | -1723 | -6157 | 7303 | -6443 | -10719 | -12106 | -6025 | -4463 |
| Total DSM Payable/Receivable(Lakhs) | -516.92806 | -62.69637 | -136.09465 | -132.69252 | -110.67114 | -184.19647 | -173.18047 | -95.82696 | -86.07135 |
| Per Unit Rate(Rs.) | 2.35 | 3.64 | 2.21 | 1.82 | 1.72 | 1.72 | 1.43 | 1.59 | 1.93 |
| ECR(Rs.) | 2.41 | 2.53 | 2.55 | 2.11 | 2.07 | 2.16 | | | |
| Avg ACP(Rs.) | 2.74 | 2.71 | 2.86 | 2.74 | 2.71 | 2.86 | 2.74 | 2.71 | 2.86 |

# SCED ACCount of EAStErn rEgion - Apr'19 to Sep'19

| S.N. | SCED Generators | Increment due to SCED scheduled to VSCED [Eastern] (MWHr) (A) | Decrement due to SCED scheduled to VSCED [Eastern] (MWHr) (B) | Charges to be paid to SCED Generators from National Pool(SCED) (in Rs) (C)= (A)xV.C. | Charges to be Refunded by SCED Generators to National Pool(SCED) (in Rs) (D)= (B)xV.C. | Net Charges Payable(+)/Receivable(-) (in Rs) (E)*= (C)-(D) |
|---|---|---|---|---|---|---|
| 1 | FSTPP I & II | 330903 | 189502 | 799099978 | 446949107 | 352150871 |
| 2 | FSTPP-III | 62582 | 34098 | 150094701 | 82054206 | 68040495 |
| 3 | KHSTPP-I | 129685 | 69112 | 294609853 | 157460140 | 137149713 |
| 4 | KHSTPP-II | 272380 | 68088 | 586602973 | 149266031 | 437336942 |
| 5 | TSTPP-I | 39647 | 59745 | 76345659 | 116263088 | -39917429 |
| 6 | BARH | 233994 | 201329 | 538978945 | 464713103 | 74265842 |
| 7 | BRBCL | 161030 | 52061 | 334523785 | 112572851 | 221950934 |
| 8 | MTPS-II | 86702 | 62898 | 236066202 | 176872538 | 59193664 |
| 9 | MPL | 65413 | 191320 | 177520990 | 522617345 | -345096355 |
| 10 | NPGC | 10998 | 9771 | 25360794 | 22532595 | 2828199 |
|  | TOTAL | 1393332 | 937924 | 3219203880 | 2251301004 | 967902876 |

**BARH**




# NTPC Barh
# AGC Issue

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# CERC Petition No. 79/RC/2017 Date of Order : 6th Dec, 2017

IN THE MATTER OF

## Automatic Generation Control (AGC) pilot project

**To sum up, the decisions are as follows:**

85. **Issue No. 5**:The Commission is of the view that on days **when full capacity is requisitioned,** ear-marking a quantum of reserves might not be feasible at this juncture and **needs to be further deliberated** with stakeholders. Similarly, the proposal of allowing regulation down **when the schedule is at technical minimum is not agreed at this stage** as it needs further examination in terms of technical feasibility and impact of going below technical minimum.

# AGC Issues NTPC Barh

- **AGC Negative Signal when SG at Technical Minimum**
- **AGC Positive Signal when SG at Full DC/Capacity**
- **Ramp Rate more than Declared Ramp Rate**

# AGC Issue: Eff. Demand < Technical Minimum SG

| Date | Time (hh : mm) | Freq (Hz) | DC (MW) | SG (MW) | Ex Bus AGC (MW) | Effective Demand (MW) | Actual Ex Bus (MW) | Deviation with AGC (MW) |
|---|---|---|---|---|---|---|---|---|
| 08-Sep-19 | 1300-1315 | 50.04 | 1237.5 | 680.6 | -34.0 | **646.7** | 674.2 | +27.5 Overinj. |
| 08-Sep-19 | 1315-1330 | 50.04 | 1237.5 | 680.6 | -34.1 | **646.6** | 674.2 | +27.6 Overinj. |
| 08-Sep-19 | 1330-1345 | 50.04 | 1237.5 | 680.6 | -34.0 | **646.7** | 675.1 | +28.4 Overinj. |
| 08-Sep-19 | 1345-1400 | 50.06 | 1237.5 | 680.6 | -34.0 | **646.6** | 672.0 | +25.4 Overinj. |
| 08-Sep-19 | 1400-1415 | 50.04 | 1237.5 | 680.6 | -34.0 | **646.7** | 673.8 | +27.1 Overinj. |
| 08-Sep-19 | 1415-1430 | 50.02 | 1237.5 | 680.6 | -33.7 | **647.0** | 677.7 | +30.7 Overinj. |

# AGC Issue: Eff. Demand > Full Capacity SG

| Date | Time (hh : mm) | Freq (Hz) | DC (MW) | SG (MW) | Ex Bus AGC (MW) | Effective Demand (MW) | Actual Ex Bus (MW) | Deviation with AGC (MW) |
|---|---|---|---|---|---|---|---|---|
| 3-Oct-19 | 2315-2330 | 49.95 | 1237.5 | 1237.5 | 35.6 | **1273.1** | 1246.3 | -26.8 Underinj. |
| 3-Oct-19 | 2330-2345 | 49.99 | 1237.5 | 1237.5 | 36.0 | **1273.5** | 1245.0 | -28.5 Underinj. |
| 3-Oct-19 | 2345-0000 | 50.02 | 1237.5 | 1237.5 | 42.8 | **1280.3** | 1238.8 | -41.5 Underinj. |
| 4-Oct-19 | 0000-0015 | 49.98 | 1237.5 | 1237.5 | 46.9 | **1284.4** | 1243.2 | -41.2 Underinj. |
| 4-Oct-19 | 0015-0030 | 49.97 | 1237.5 | 1237.5 | 46.6 | **1284.1** | 1241.5 | -42.7 Underinj. |
| 4-Oct-19 | 0030-0045 | 50.01 | 1237.5 | 1237.5 | 46.7 | **1284.2** | 1240.6 | -43.6 Underinj. |

# AGC Issue: Ramp Rate

| Time | DC (MW) | SG (MW) | Ex Bus AGC (MW) | Declared Ramp Rate | Base SG Ramp (MW) | AGC Ramp (MW) | Effective Ramp Demand |
|---|---|---|---|---|---|---|---|
| 24-08-2019 06:15 PM (Previous Block) | 1237.5 | 950.6 | -46.9 | 90.0 | 90.0 | -25.6 | 64.4 |
| 24-08-2019 06:30 PM (Next Block) | 1237.5 | 1040.6 | -10.3 | **90.0** | 90.0 | 36.6 | **+126.6** |
| | | | | | | | |
| 19-09-2019 03:45 PM | 1237.5 | 1237.5 | -30.0 | 90.0 | 53.9 | 0.6 | 54.5 |
| 19-09-2019 04:00 PM | 1237.5 | 1147.5 | -42.5 | **90.0** | -90.0 | -12.5 | **-102.5** |
| 19-09-2019 04:15 PM | 1237.5 | 1237.5 | -27.2 | **90.0** | 90.0 | 15.3 | **+105.3** |

# AGC Issue: Commercial Impact

| Issue | No. of Time Blocks<br>24-Aug-19 to 24-Nov-19 |
|---|---|
| Effective SG < Technical Minimum SG | 353 |
| Effective SG > Full Capacity SG | 532 |
| Ramp Rate Demand > Declared Ramp Rate | 202 |

**Annexure-B4**

पावरग्रिड
POWERGRID

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

Ref: ER-II/KOL/ULDC /6059

Dated: 03.12.2019

**To,**

**The Executive Engineer,**
**Eastern Regional Power Committee,**
**14, Golf Club Road,**
**Tollygunge, Kolkata -700033**

**Kind Attn: Sh. J. G. RAO**

Sub: - Cost Estimate of implementation of 18 no of OPGW Links as per Agenda of 2nd TeST Meeting held on 26.11.2019.

**Dear Sir,**

This has reference to discussion in the 2nd TeST Meeting held on 26.11.2019, regarding submission of Cost Estimate of 19 no of OPGW links ( 2485 KM ). The cost Estimate of 18 no of OPGW links of 2485 KM has been calculated to INR 83 Crores, as per following details :-

| **Estimate for Implementation of Proposed OPGW links as per Agenda of 2nd TeST meeting dtd 26.11.19** | | | | |
|---|---|---|---|---|
| **Sr. No** | **Sector** | **Size (Km)** | **No of Links** | **Estimated Cost (in Cr)** |
| **1** | **POWERGRID** | **1796** | **9** | **60** |
| **2** | **DVC** | **379** | **6** | **13** |
| **3** | **JUSNL** | **310** | **3** | **10** |
| | | **2485** | **18** | **83** |

It is to mention that Nabhinagar (BRBCL) GS to Sasaram OPGW link of 82 KM approved in 39th ERPC Meeting for implementation in ER – Up-gradation of SCADA/RTU/SAS in Central Sector stations & Strengthening of OPGW Network in ER. Therefore, the same was excluded from the aforesaid Cost Estimate. Link list is enclosed in **Annexure –I.**

This is for your kind information please.

**Thanking you.**

**With Regards**

03.12.19

**(K.K. Prusti)**
**GM(HVDC & ULDC) /ER-II**

**Copy to : 1. Member Secretary, ERPC, Kolkata : For kind information please.**
**2. CGM(AM & ULDC)/ER-II : ---- do -----.**

***Estimate for Implementation of Proposed OPGW links as per Agenda of 2nd TeST meeting dtd 26.11.19***

| Sr. No | Sector | Size (Km) | No of Links | Estimated Cost (in Cr) |
|---|---|---|---|---|
| 1 | POWERGRID | 1796 | 9 | 60 |
| 2 | DVC | 379 | 6 | 13 |
| 3 | JUSNL | 310 | 3 | 10 |
| | | **2485** | **18** | **83** |

***Proposed OPGW links as per Agenda of 2nd TeST meeting dtd 26.11.19***

| Sl.no | Corridor | Selected line for laying OPGW | Voltage level | Length (km) | Total length |
|---|---|---|---|---|---|
| 1 | ER-NR | Gaya -Varanasi - line 1 | 765 | 265 | **460** |
| 2 | | Patna- Balia- line 1 | 400 | 195 | |
| 3 | ER-WR | Ranchi - Dharmjaygarh | 765 | 305 | **454** |
| 4 | | Jhasarguda-Dharmjaygarh - line 1 | 765 | 149 | |
| 5 | ER-SR | Jeypore-Gajuwaka | 400 | 221 | **221** |
| 6 | ISTS Network | ~~Nabhinagar (BRBCL) GS to Sasaram*~~ | ~~400~~ | ~~82~~ | **661** |
| 7 | | Farakka-Purnea | 400 | 160 | |
| 8 | | Farakka- Sagardighi -Subhashgram | 400 | 301 | |
| 9 | | Maithon (PG) - Durgapur(WB) | 400 | 128 | |
| 10 | | Durgapur(PG) - Sagardhigi (WB) | 400 | 72 | |
| 11 | DVC | KTPS - Giridh (line 251 & 252) | 220 | 101 | **379** |
| 12 | | Jamuria - Ramkanali (line 90) | 132 | 53 | |
| 13 | | Ramkanali - CTPS (line 60) | 132 | 70 | |
| 14 | | Purulia- Jamsehdpur (line 39 & 40) | 132 | 87 | |
| 15 | | CTPS - Gola (line 6 & 7) | 132 | 67 | |
| 16 | | Howrah(DVC)-Howrah(WB) | | 1 | |
| 17 | JUSNL | Daltonganj(JUSNL)-Latehar(JUSNL) LILO at Daltonganj(PG) | 220 | 90 | **310** |
| 18 | | Jodda(OPTCL)-Ramchandrapur (JH) | 220 | 130 | |
| 19 | | Chandil(JH) to Ranchi (PG) upto LILO Point | 220 | 90 | |
| | | | | **2485** | **2485** |
| | | | | | |

**Note - * Link already approved for implementation in ER - Upgradation of SCADA/RTU/SAS in Central Sector stations & Strengthening of OPGW Network in ER ( during 39th ERPC meeting)**
**Hence the same is excluded from the present scope.**

**Annexure-B11**

| List of Substation Connected with PGCIL Intranet connection | | | |
|---|---|---|---|
| **Sl No.** | **Substation name** | **Uitility** | **Date** |
| 1 | Subhashgram | Powergrid | 15–Jun–2017 |
| 2 | Binaguri | Powergrid | 20–Jul–2017 |
| 3 | Malda | Powergrid | 06–Jun–2018 |
| 4 | Kishanganj | Powergrid | 15–Jul–2018 |
| 5 | Siliguri | Powergrid | 12–Sep–2018 |
| 6 | Gangtok | Powergrid | 15–Sep–2018 |
| 7 | Rourkela | Powergrid | 03 – Oct – 2018 |
| 8 | Gaya | Powergrid | 25 – Dec - 2018 |
| 9 | Biharshariff | Powergrid | 27 – Dec – 2018 |
| 10 | Arah | Powergrid | 29 – Oct – 2018 |
| 11 | Jamshedpur | Powergrid | 02 – Nov – 2018 |
| 12 | Rangpo | Powergrid | 01 – Nov – 2018 |
| 13 | Rangpo | Powergrid | 05 – Dec – 2018 |
| 14 | Durgapur | Powergrid | 07 – Dec – 2018 |
| 15 | Jeypore | Powergrid | 10 – Dec – 2018 |
| 16 | Maithon(MTN) | Powergrid | 11 – Dec – 2018 |
| 17 | Pusaul | Powergrid | 19 – Dec – 2018 |
| 18 | Muzaffarpur | Powergrid | 20 – Dec – 2018 |
| 19 | Barh | NTPC | 21 – Dec – 2018 |
| 20 | Kahalgaon | NTPC | 21 – Dec – 2018 |
| 21 | Purnea | Powergrid | 24 – Dec – 2018 |
| 22 | Banka | Powergrid | 27 – Dec – 2018 |
| 23 | Teesta | NHPC | 01 – Jan – 2019 |
| 24 | Rangit | NHPC | 02 – Jan – 2019 |
| 25 | Baripada | Powergrid | 15 – Nov – 2018 |
| 26 | Ranchi | Powergrid | 10 – Jan – 2019 |
| 27 | Talcher | NTPC | 16 – Jan – 2019 |
| 28 | Farakka | NTPC | 22 – Jan – 2019 |
| 29 | Chaibasa | Powergrid | 28 – Jan – 2019 |
| 30 | Dalkhola | Powergrid | 28 – Jan – 2019 |
| 31 | Birpara | Powergrid | 29 – Jan – 2019 |
| 32 | Rajarhat | Powergrid | 18 – Apr – 2019 |
| 33 | Kanti | NTPC | 28 – May – 2019 |
| 34 | Patna | Powergrid | 20-Sep-19 |
| 35 | Behrampore | Powergrid | 18-Nov-19 |

**Annexure-B12**

| Future Procurment of Meters for one next one year. | | | |
|---|---|---|---|
| **Sl. No.** | **S/s** | **Sub-Station Details** | **No. of Meters** |
| | | **ER-1** | |
| 1 | | 400kV D/c Darbhanga – Sitamarhi (New) | 4 |
| 2 | | 400kV D/c Sitamarhi (New) – Motihari | 4 |
| 3 | | LILO of both circuits of Nabinagar-II – Gaya 400kV D/c (Quad Moose) (2.2 KM) line of PGCIL at Chandauti (New) | 2 |
| 4 | | LILO of both circuits of Kishanganj – Patna 400kV D/c (Quad Moose) (75 KM) line of PGCIL at Saharsa (New) | 2 |
| 5 | Sitamarhi S/s | 400kV Sitamarhi (New) S/s 2X500 MVA ICT | 4 |
| 6 | | 220kV Sitamarhi (New) S/s 2X200 MVA ICT | 4 |
| 7 | | 220kV D/C Sitamarhi (New) – Motipur (BSPTCL) | 4 |
| 8 | | 220kV D/C Sitamarhi (New) – Motihari (New of BSPTCL) | 4 |
| 9 | | 132 KV D/c Sitamarhi (New) – Sitamarhi | 4 |
| 10 | | 132KV D/c Sitamarhi (New) – Pupri | 4 |
| 11 | | Future bays and ICTs | 8 |
| 12 | Chandauti S/s | 400 kV Chandauti (New) 3X500 MVA ICT | 6 |
| 13 | | LILO of both circuits of Nabinagar-II – Gaya 400kV D/c (Quad Moose) line of PGCIL at Chandauti (New) | 2 |
| 14 | | 220kV Chandauti (New) 3X200 MVA ICT | 6 |
| 15 | | 220 KV LILO of Gaya (PGCIL) – Sonenagar 220kV D/c at Chandauti (New). | 2 |
| 16 | | 220 KV Gaya (PGCIL) – Sonenagar shall be LILOed at Bodhgaya (BSPTCL) | 2 |
| 17 | | 132 kV Chandauti (New) 3 no. ICT | 6 |
| 18 | | 132 kV LILO of Chandauti (BSPTCL) – Rafiganj at Chandauti(New) | 2 |
| 19 | | 133 kV LILO of LILO of Chandauti (BSPTCL) – Sonenagar at Chandauti(New) | 2 |
| 20 | Saharsa S/s | 400 KV Saharsa 2X500 MVA | 4 |
| 21 | | 400 KV LILO of Kishanganj – Patna 400kV D/c (Quad Moose) line of PGCIL at Saharsa (New)] | 4 |
| 22 | | For 400 kV future bays and future ICTs | 4 |
| 23 | | 220 Kv Saharsa 2X200 MVA ICT | 4 |
| 24 | | 220 KV D/c Saharsa (New) – Begusarai | 4 |
| 25 | | 220 KV D/c Saharsa (New) – Khagaria (New) | 4 |
| 26 | | For 220 kV future bays and future ICTs | 4 |
| 27 | | 132 KV D/c Saharsa (New) – Saharsa 132kV | 2 |
| 28 | Darbhanga S/s | 400 kV D/c Darbhanga 1X315 MVA ICT | 2 |
| 29 | | 400 kV D/c Darbhanga – Sitamarhi (New) | 4 |
| 30 | | 132 KV ICT | 1 |
| | | | |
| 31 | | Odisha Project no meer in hand | |
| 32 | | LILO bypass arrangement at Angul S/s of Talcher - Meramundali ckt2 | 1 |
| 33 | | LILO bypass arrangement at Angul S/s Meramundali-Jeypore ckt1 | 1 |
| 34 | | | |
| | | ER-2 in hand 49 nos. | |
| 35 | | 400 KV Alipurduar-Jigmeling-D/C | 6 |
| 36 | | 3rd 315 MVA ICT at Binaguri SS. | 2 |
| 37 | | 400 KV Jeerat-Subhasgram-D/C. | 4 |
| 38 | | 400 KV Sgardighi-Subhasgram LILO at Jeerat. | 2 |

| | | | |
|---|---|---|---|
| 39 | | 400 KV Jeerat-New Jeerat-D/C. | 4 |
| 40 | | 400 KV Kaharagpur-Chanditala LILO at Medinipur. | 2 |
| 41 | | 765 KV Ranchi-Medinipur-D/C. | 4 |
| 42 | | 2X1500 MVA ICT at Medinipur. | 4 |
| 43 | | 2X1500 MVA ICT at New Jeerat. | 4 |
| 44 | | 3rd 500 MVA ICT at Maithon. | 2 |
| 45 | | 400 KV D/c Baharampur-Bangladesh | 4 |
| | | **Sub Total** | **149** |

| | | | |
|---|---|---|---|
| 1 | ISGS | Rognichu HEP(Sikkim) | 6 |
| | | North Karanpura (3x660MW) generation project (of NTPC) | 3 |
| | ISGS | North Karanpura – Gaya 400kV D/c (Quad) line<br>(b) North Karanpura – Chandwa 400kV D/c (Quad) line<br>(c) Establishment of 400/220 kV, 2x500 MVA sub-station at Dhanbad | 10 |
| | | **Sub Total** | **19** |
| **Total(a)** | | | **168** |
| **Spare @ 20% of total SEM requirment(b)** | | | **34** |
| **Total(c=a+b)** | | | **202** |

**Annexure-B30.1**

# SUMMARY OF DEVIATION CHARGE RECEIPT AND PAYMENT STATUS

## BILL UPTO 10.11.19 (Week -32 of 2019 - 20)
## Last Payment Disbursement Date - 02.12.19

**Figures in Rs. Lakhs**

| CONSTITUENTS | Receivable | Received | Payable | Paid | Outstanding |
|---|---|---|---|---|---|
| WR | 210.86159 | 0.00000 | 169278.78540 | 168082.95106 | -984.97275 |
| SR | 76252.56681 | 73393.35312 | 10012.36734 | 10056.49192 | 2903.33827 |
| NER | 68540.50265 | 70222.57730 | 13566.65763 | 13803.88317 | -1444.84911 |
| NR | 46094.37150 | 46782.22208 | 16370.87199 | 15455.26741 | -1603.45516 |
| BSPHCL | 5722.62531 | 1367.19037 | 236.78320 | 0.00000 | 4118.65174 |
| JSEB | 4650.73945 | 3468.49922 | 240.56969 | 0.00000 | 941.67054 |
| DVC | 4231.51263 | 4283.28776 | 1897.31286 | 2058.12130 | 109.03331 |
| GRIDCO | 11038.06154 | 11038.06177 | 664.33328 | 664.33311 | -0.00040 |
| WBSETCL | 11792.41050 | 11536.53451 | 264.06639 | 267.33635 | 259.14595 |
| SIKKIM | 280.49592 | 0.00000 | 357.68623 | 0.00000 | -77.19031 |
| NTPC | 7282.13188 | 7277.18035 | 263.42954 | 259.58053 | 1.10252 |
| NHPC | 123.49227 | 39.91657 | 1369.48007 | 1285.81820 | -0.08617 |
| MPL | 79.84339 | 79.84339 | 334.33492 | 334.33492 | 0.00000 |
| MTPS STG-II | 771.69906 | 771.69894 | 2.65114 | 2.45543 | -0.19559 |
| APNRL | 882.56053 | 868.77721 | 0.00000 | 0.00000 | 13.78332 |
| CHUZACHEN (GATI) | 88.02638 | 75.70962 | 67.67265 | 66.08648 | 10.73059 |
| NVVN(IND-BNG) | 2229.69237 | 2214.94937 | 3.40866 | 3.40866 | 14.74300 |
| JIITPL | 415.79553 | 405.72216 | 51.38963 | 51.38963 | 10.07337 |
| GMR | 1950.48283 | 1077.02983 | 5.37829 | 0.00000 | 868.07471 |
| IND BARATH | 112.50429 | 0.00000 | 0.00000 | 0.00000 | 112.50429 |
| TPTCL(DAGACHU) | 2182.94689 | 2122.63381 | 0.00000 | 0.00000 | 60.31308 |
| JLHEP(DANS ENERGY) | 641.45766 | 621.13951 | 9.65741 | 9.79538 | 20.45612 |
| BRBCL(Nabinagar) | 529.43616 | 529.24803 | 97.12983 | 97.12993 | 0.18823 |
| NVVN (IND-NEPAL) | 718.84209 | 719.95678 | 80.87867 | 81.99336 | 0.00000 |
| HVDC SASARAM | 24.00025 | 0.00000 | 5.35660 | 0.00000 | 18.64365 |
| HVDC ALIPURDUAR | 27.12438 | 0.00000 | 11.35695 | 0.00000 | 15.76743 |
| TEESTA-III | 1446.62063 | 1445.10793 | 576.80878 | 584.56254 | 9.26646 |
| DIKCHU | 160.02088 | 160.02107 | 334.71340 | 334.71364 | 0.00005 |
| TASHIDING(THEP) | 265.09938 | 263.26297 | 178.75088 | 189.15268 | 12.23821 |
| OPGC | 440.38333 | 440.38333 | 3028.92286 | 3028.92286 | 0.00000 |
| NPGC | 1063.17367 | 1050.91521 | 2520.85583 | 2520.85583 | 12.25846 |
| **TOTAL** | **250249.48175** | **242255.22221** | **221831.61012** | **219238.58439** | |

**As on** **02.12.19**

Receivable: Receivable by ER POOL Payable Payable by ER POOL

Received Received by ER POOL Paid Paid by ER POOL

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

**Annexure-B30.2**

# Deviation Interest Bill due to delay payment during FY 2018-19

As on 18.11.2019

| Sl No. | Name of Constituents | Interest amt payable by party (in ₹) | Amount paid/recovered by party(in ₹) | Interest amt receivable by party(in ₹) | Amt paid to the party(in ₹) | Outstanding Interest as on 18.11.19 |
|---|---|---|---|---|---|---|
| 1 | BSPHCL | 17962810 | 17962809.82 | 0 | 0 | **0** |
| 2 | JUVNL | 30295597 | 30295597 | 0 | 0 | **0** |
| 3 | DVC | 170088 | 170088 | 0 | 0 | **0** |
| 4 | GRIDCO | 0 | 0 | 520 | 0 | **-520** |
| 5 | WBSETCL | 0 | 0 | 1199 | 1199 | **0** |
| 6 | SIKKIM | 1039941 | 959498 | 0 | 0 | **80442** |
| 7 | NTPC | 16883 | 16883 | 0 | 0 | **0** |
| 8 | NHPC | 0 | 0 | 23828 | 23828 | **0** |
| 9 | MPL | 0 | 0 | 8387 | 7596 | **-791** |
| 10 | APNRL | 270694 | 270694 | 0 | 0 | **0** |
| 11 | CHUZACHEN | 9527 | 0 | 0 | 0 | **9527** |
| 12 | NVVN(IND-BD) | 0 | 0 | 1659 | 1659 | **0** |
| 13 | JITPL | 58 | 58 | 0 | 0 | **0** |
| 14 | GMR | 1265691 | 0 | 0 | 0 | **1265691** |
| 15 | IND BARATH | 3439926 | 0 | 0 | 0 | **3439926** |
| 16 | TPTCL(DAGACHU) | 61182 | 61182 | 0 | 0 | **0** |
| 17 | JLHEP | 12876 | 12876 | 0 | 0 | **0** |
| 18 | BRBCL | 7602 | 7602 | 0 | 0 | **0** |
| 19 | NVVN(IND-NEP) | 8314 | 0 | 0 | 0 | **8314** |
| 20 | TUL(TEESTA-III) | 0 | 0 | 17676 | 17676 | **0** |
| 21 | DIKCHU | 7180 | 0 | 0 | 0 | **7180** |
| 22 | HVDC-PSL | 66976 | 0 | 0 | 0 | **66976** |
| 23 | HVDC-ALPD | 0 | 0 | 4410 | 0 | **-4410** |
| 24 | TASHIDING | 119055 | 119055 | 0 | 0 | **0** |
| 25 | OPGC | 0 | 0 | 0 | 0 | **0** |
| 26 | NPGC | 77385 | 0 | 0 | 0 | **77385** |
| 27 | KBUNL | 24623 | 24623 | 0 | 0 | **0** |
| | **Total** | **54856407** | **49900967** | **57679** | **51958** | **4949719** |

**Annexure-B30.3**

# STATUS OF REACTIVE CHARGES

## RECEIVABLE IN ER POOL AS PER PUBLISHED A/C FROM 02.04.18 TO 10.11.19

AS ON 02.12.19

| CONSTITUENT | AMOUNT RECEIVABLE IN THE POOL (Rs.) | AMOUNT RECEIVED IN THE POOL (Rs.) | OUTSTANDING (Rs.) |
|---|---|---|---|
| | | | |
| | | | |
| WBSETCL | 301383612 | 293494008 | 7889604 |
| | | | |
| DVC | 2135995 | 2135995 | 0 |
| | | | |
| BSPHCL | 4902222 | 4631550 | 270672 |
| | | | |
| SIKKIM | 92567 | 76131 | 16436 |
| | | | |
| JUVNL | 3873260 | 536864 | 3336396 |
| | | | |
| GRIDCO | 20175883 | 20175883 | 0 |
| | | | |
| TOTAL | 332563539 | 321050431 | 11513108 |

Annexure - B31

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

***Figures in Lacs of Rupees***

| Sl No | ER Constituents | LC Amount 110% of (B) | Due date of expiry | Remarks |
|---|---|---|---|---|
| | | (E) | (F) | (G) |
| 1 | JUVNL | 262.49910 | 12.03.2020 | Opened for 221.83872 Lac |
| 2 | Sikkim | 19.23349 | 18.09.2020 | Opened for 19.23349 Lacs |
| 3 | NTPC | 132.16667 | 30.06.2020 | Opened for 132.16667 Lacs |
| 4 | KBUNL(MTPS-II) | 37.77956 | 16.08.2020 | Opened for 37.77956 Lacs |
| 5 | APNRL | 9.14019 | 31.12.2019 | Opened for 6.51143 Lacs |
| 6 | JITPL | 6.21265 | 31.03.2020 | Opened for 13.19100 Lac |
| 7 | GMR | 31.60864 | 06.06.2020 | Opened for 31.60864 Lacs |
| 8 | TPTCL(DAGACHU) | 97.08656 | 31.03.2020 | Opened for 97.08656 Lacs |
| 9 | JLHEP (DANS ENERGY) | 5.24331 | 30.11.2019 | Opened for 13.79780 Lacs |
| 10 | Tashiding (THEP) | 6.96480 | 27.06.2020 | Opened for 2.71519 Lacs |
| 11 | BRBCL(NABINAGAR) | 5.25547 | 09.07.2020 | Opened for 5.25547 Lacs |
| 12 | BSPHCL | 165.34279 | Expired on 16.11.2018 | Letter issued |
| 13 | CHUZACHEN (GATI) | 2.44609 | Expired on 31.03.2019 | Letter issued |
| 14 | DIKCHU | 2.71519 | Expired on 20.05.2019 | Letter issued |
| 15 | DVC | 420.68949 | Not opened | Letter issued |
| 16 | GRIDCO | 477.03492 | On process | On process |
| 17 | NVVN (IND-BNG) | 41.02977 | Not opened | Letter issued |
| 18 | NVVN (IND-NEPAL) | 90.02472 | Not opened | Letter issued |
| 19 | HVDC SASARAM | 1.08128 | Not opened | Letter issued |
| 20 | HVDC-ALIPURDUAR | 2.09721 | Not opened | Letter issued |
| 21 | NPGC | 25.39032 | Not opened | Letter issued |

# GRIDCO LIMITED

(A Govt. of Odisha Undertaking)
(Formerly Grid Corporation of Orissa Limited)
Regd. Office: Janpath, Bhubaneswar-751022
**CIN:L40109OR1995SGC003960**

Ref:Sr.GM-PP-15/2018/ 4929(4) Date: 06/12/19

To,

The Member Secretary,
Eastern Regional Power Committee,
14, Golf Club Road, Tollygung, Kolkata - 700 033
E-mail: mserpc-power@nic.in

Sub: Replacement of existing Joda - JSPL conductor with HTLS.

Ref : Office letter no. 788 dated 26.11.2019 of CGM (Con)

Sir,

Inviting reference to the subject cited above and subsequent to placing this as an agenda item in the next CEA standing committee, Odisha is to place the following for your kind consideration.

The power flow in the Joda-JSPL 220 kV line varies from 120 to 145 MW during peak scenario. With the drawl of around 75 MW by M/s JSW from JSPL switching station, the Joda-JSPL portion will be loaded to around 220 MW.

M/s JSW has given their consent to replace the Joda-JSPL portion with HTLS (ANNEXURE-I).

However, during the replacement, which will take almost around 3 months, the JSPL load of around 50 MW has to be catered by M/s DVC. As this project is of paramount importance to the state of Odisha M/s DVC may be requested to cater the load of M/s JSPL in the interim period during the augmentation.

The replacement with HTLS will eventually be beneficial to both Odisha and DVC in the long run.

With regards

Yours faithfully,

06/12/19
**CGM (PP)**

C.C.: (i) Commissioner-cum-Secretary, Dept. of Energy, Govt. of Odisha for kind information.
(ii) Commissioner-cum-Secretary, Industries Department, Govt. of Odisha for kind information.
(iii) E.A. to CMD, GRIDCO for kind appraisal of CMD.

O/C

(317

JSW Utkal Steel Limited

3867
21.11.19

No. JSW/U/O/2019/266

Date- 20th November 2019

To

The CGM-O&M

OPTCL, Bhubaneswar

**Sub: - JSWUSL Joda Unit 220 KV Power Supply**

Ref: - TB-SO-PSI-27/2017/1870 dtd. 05.11.2019

Dear Sir,

This is in reference to the joint visit to JSPL Switchyard Joda Plant and joint inspection report, JSW agrees to go ahead with Option-1 to draw 220 KV power supply by constructing a 220 KV AIS bay adjacent to transformer-III bay of JSPL for the grinding unit. We are in the process of acquiring the land adjacent to JSPL boundary through IDCO. JSWUSL are also agreeing to all the conditions put by OPTCL in option no-1

You are requested to approve and release 75 MW power in the name of JSWUSL by which project activities can be started.

Thanking you

Your Faithfully

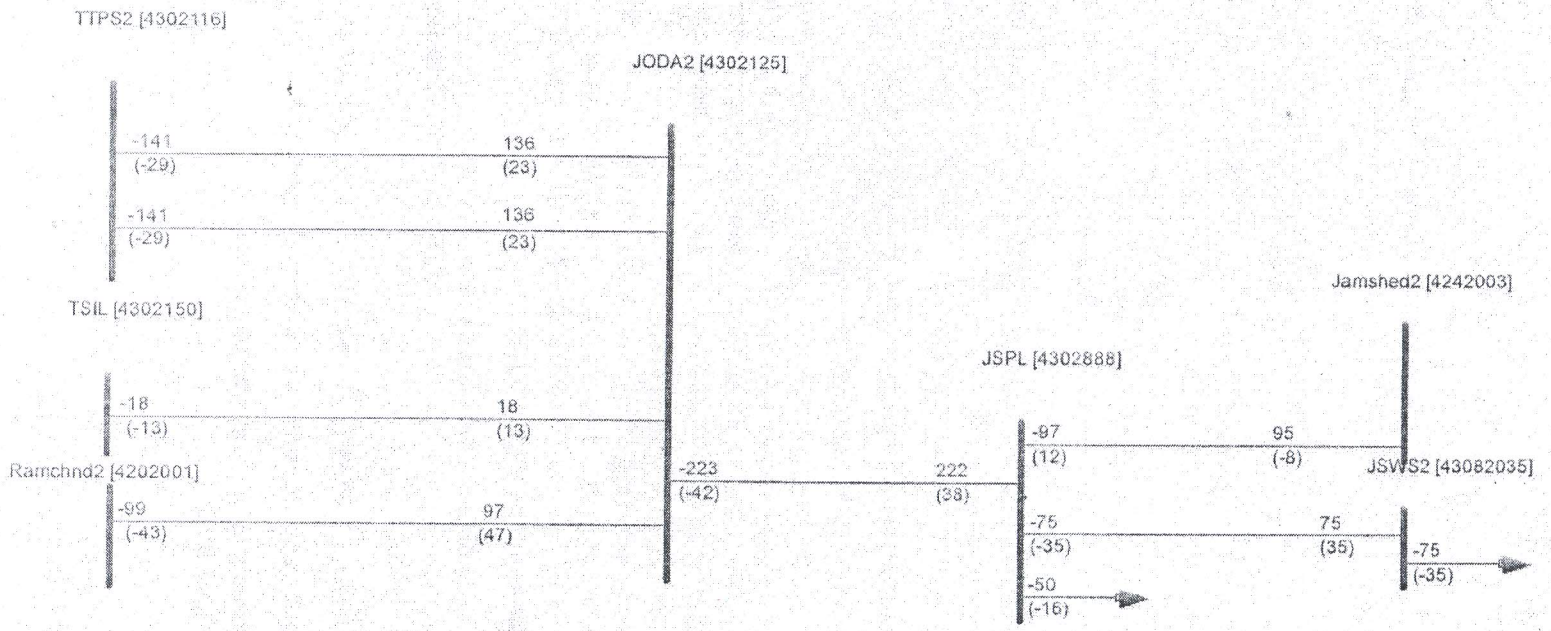
B.K.Das

Head-E&A

CC to: - Director (Operation) OPTCL – For kind information please.

8/11/2019

# POWER SYSTEM STUDY SHOWING CONNECTIVITY OF JODA COMMAND AREA FOR DRAWL OF ABOUT 75 MW OF POWER BY M/S JSW UTKAL STEEL LTD. THROUGH LILO OF 220 KV TRANSMISSION LINK BETWEEN JODA AND DVC.



**Annexure - C7.1**

## SUMMARY OF RRAS CHARGE RECEIPT AND PAYMENT STATUS

**BILL from 01.04.19 TO 10.12.19(upto Week -32 of 2019 - 20)**

**Last Payment Disbursement Date -02.12.19**

**Figures in Rs. Lakhs**

| CONSTITUENTS | Receivable | Received | Payable | Paid | Outstanding |
|---|---|---|---|---|---|
| NTPC | 3312.89163 | 1008.31159 | 5655.96071 | 3351.38067 | **0.00000** |
| BRBCL (Nabinagar) | 443.41886 | 54.27914 | 2419.58256 | 2030.44284 | **0.00000** |
| KBUNL (MTPS-II) | 350.06837 | 41.02032 | 1568.02662 | 1258.97857 | **0.00000** |
| MPL | 377.65517 | 168.88210 | 484.39421 | 275.62114 | **0.00000** |
| NPGC | 78.74273 | 49.68585 | 76.98637 | 36.50017 | **-11.42932** |
| **TOTAL** | **4562.77676** | **1322.17900** | **10204.95047** | **6952.92339** | **-11.42932** |

**As on 02.12.19**

Receivable: Receivable by ER POOL Payable Payable by ER POOL

Received Received by ER POOL Paid Paid by ER POOL

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

## SUMMARY OF FRAS CHARGE RECEIPT AND PAYMENT STATUS

**BILL from 01-Apr-19 TO 10-Nov-19 (upto Week -32 of 2019 - 20)**

**Last Payment Disbursement Date -02.12.19**

**Figures in Rs. Lakhs**

| CONSTITUENTS | Receivable | Received | Payable | Paid | Outstanding |
|---|---|---|---|---|---|
| NHPC | 0.00000 | 0.00000 | 1.32191 | 1.32191 | **0.00000** |
| **TOTAL** | **0.00000** | **0.00000** | **1.32191** | **1.32191** | **0.00000** |

**As on 02.12.19**

Receivable: Receivable by ER POOL Payable Payable by ER POOL

Received Received by ER POOL Paid Paid by ER POOL

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

## SUMMARY OF AGC CHARGE RECEIPT AND PAYMENT STATUS

**BILL from 01.04.19 TO 10.11.19(upto Week -32 of 2019 - 20)**

**Last Payment Disbursement Date -02.12.19**

**Figures in Rs. Lakhs**

| CONSTITUENTS | Receivable | Received | Payable | Paid | Outstanding |
|---|---|---|---|---|---|
| **BARH** | 291.57738 | 151.19253 | 142.59358 | 4.62042 | **2.41169** |
| **TOTAL** | **291.57738** | **151.19253** | **142.59358** | **4.62042** | **2.41169** |

**As on 02.12.19**

Receivable: Receivable by ER POOL Payable Payable by ER POOL

Received Received by ER POOL Paid Paid by ER POOL

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

**Annexure - C7.4**

# SUMMARY OF CONGESTION CHARGE RECEIPT AND PAYMENT STATUS

## Bill upto 07.01.2013
## Last Payment Disbursement Date - 13.05.2013

**Figures in Rs. Lakhs**

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

**% Realization** **As on 31.05.2015**

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

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

**Annexure - C7.5**

# DETAILS OF DISBURSEMENT TO POWER SYSTEM DEVELOPMENT FUND

| Sl No | Nature of Amount | Amount transferred to PSDF (Rs in Lac) | Date of Disbursement | Remarks |
|---|---|---|---|---|
| **1** | **Opening Balance (upto 31.12.16)** | **90040.05774** | | |
| **2** | Reactive Energy Charge | 248.26904 | 31.07.17 | Reactive Charges_17-18 |
| **3** | Reactive Energy Charge | 128.44284 | 29.08.17 | Reactive Charges_17-18 |
| **4** | Reactive Energy Charge | 103.22685 | 26.09.17 | Reactive Charges_17-18 |
| **5** | Reactive Energy Charge | 249.14078 | 31.10.17 | Reactive Charges_17-18 |
| **6** | Reactive Energy Charge | 172.20693 | 30.11.17 | Reactive Charges_17-18 |
| **7** | Reactive Energy Charge | 200.00000 | 15.12.17 | Reactive Charges_17-18 |
| **8** | Reactive Energy Charge | 100.00000 | 05.01.18 | Reactive Charges_17-18 |
| **9** | Reactive Energy Charge | 558.45339 | 06.02.18 | Reactive Charges_17-18 |
| **10** | Reactive Energy Charge | 171.95546 | 06.03.18 | Reactive Charges_17-18 |
| **11** | Reactive Energy Charge | 129.35497 | 04.04.18 | Reactive Charges_17-18 |
| **12** | Reactive Energy Charge | 126.21494 | 07.05.18 | Reactive Charges_18-19 |
| **13** | Reactive Energy Charge | 183.31081 | 06.06.18 | Reactive Charges_18-19 |
| **14** | Reactive Energy Charge | 215.58816 | 05.07.18 | Reactive Charges_18-19 |
| **15** | Reactive Energy Charge | 176.54245 | 03.08.18 | Reactive Charges_18-19 |
| **16** | Reactive Energy Charge | 39.54556 | 06.09.18 | Reactive Charges_18-19 |
| **17** | Reactive Energy Charge | 34.03973 | 01.10.18 | Reactive Charges_18-19 |
| **18** | Reactive Energy Charge | 74.57236 | 05.11.18 | Reactive Charges_18-19 |
| **19** | Reactive Energy Charge | 40.66623 | 04.12.18 | Reactive Charges_18-19 |
| **20** | Reactive Energy Charge | 236.89035 | 02.01.19 | Reactive Charges_18-19 & 15-16 |
| **21** | Reactive Energy Charge | 300.04546 | 05.02.19 | Reactive Charges_18-19 & 15-16 |
| **22** | Reactive Energy Charge | 233.27998 | 05.03.19 | Reactive Charges_18-19 |
| **23** | Reactive Energy Charge | 105.79202 | 04.04.19 | Reactive Charges_18-19 |
| **24** | Reactive Energy Charge | 287.48448 | 03.05.19 | Reactive Charges_18-19 & 19-20 |
| **25** | Reactive Energy Charge | 129.69559 | 03.06.19 | Reactive Charges_19-20 |
| **26** | Reactive Energy Charge | 207.83840 | 04.07.19 | Reactive Charges_19-20 |
| **27** | Reactive Energy Charge | 94.91703 | 02.08.19 | Reactive Charges_19-20 |
| **28** | Reactive Energy Charge | 188.53681 | 02.09.19 | Reactive Charges_19-20 |
| **29** | Surplus DSM amount transferred | 32210.51998 | 24.09.19 | DSM Charges_19-20 |
| **30** | Reactive Energy Charge | 173.06004 | 01.10.19 | Reactive Charges_19-20 |
| **31** | Reactive Energy Charge | 273.15002 | 01.11.19 | Reactive Charges_19-20 |
| | **Total** | **129567.16117** | | |