



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



No. ERPC/TCC&Committee/14/2019/88-154

Date: 01.04.2019

To:

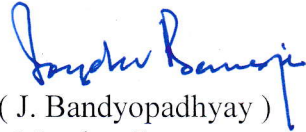
1. Members of Eastern Regional Power Committee.
2. Members of TCC.

**Subject: Minutes of 40<sup>th</sup> ERPC & TCC Meetings.**

Sir,

The minutes of the 40<sup>th</sup> TCC & ERPC meetings held on 15<sup>th</sup> & 16<sup>th</sup> March 2019 respectively in Jodhpur have been issued and uploaded on [www.erpc.gov.in](http://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,

 01/04/2019  
( J. Bandyopadhyay )  
Member Secretary

Attach.: As above.

## 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, Bhubaneswar-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, 7<sup>th</sup> 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, South Bihar Power Distribution Company Limited, Vidyut Bhavan , Bailey Road, Patna-800021.
13. Chairman & Managing Director, West Bengal State Electricity Distribution Company Ltd., Vidyut Bhavan, 7<sup>th</sup> Floor, Block-DJ, Sector-II, Bidhannagar, Kolkata-700091.
14. Managing Director, West Bengal State Electricity Transmission Company Ltd., Vidyut Bhavan, 8<sup>th</sup> 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-700098.
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., 2<sup>nd</sup> floor, NBCC Tower, 15 Bhikaji Cama Place, New Delhi-110066.
25. Chief Executive Officer, NTPC Vidyut Vyapar Nigam Limited, SCOPE Complex, Core-5, 1<sup>st</sup> & 2<sup>nd</sup> Floor, Lodhi Road, New Delhi-110003.
26. Managing Director, Tata Power Trading Company Limited, B12/13, 2<sup>nd</sup> 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, 2<sup>nd</sup> Floor, Nelson Mandela Road, Vasant Kunj, New Delhi-110070.
32. Managing Director, Teesta Urja Limited, 2<sup>nd</sup> 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, 7<sup>th</sup> 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), South Bihar Power Distribution Company Limited , Vidyut Bhavan , Bailey Road, Patna-800021.
13. Director (Operations), West Bengal State Electricity Transmission Company Ltd., Vidyut Bhavan, 8<sup>th</sup> Floor, Block-DJ, Sector-II, Bidhannagar, Kolkata-700091.
14. Director (R&T), West Bengal State Electricity Distribution Company Ltd., Vidyut Bhavan, 7<sup>th</sup> Floor, Block-DJ, Sector-II, Bidhannagar, Kolkata-700091.-
15. Director (O&M), WBPDC, Vidyut Unnayan Bhavan, 3C, Block-LA, Sector-III, Bidhannagar, Kolkata-700098.
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), CEA, Sewa Bhawan, R.K. Puram , New Delhi-110066.
19. Regional Executive Director (ER-I), NTPC Ltd., 2<sup>nd</sup> floor, Lok Nayak Jai Prakash Bhawan, Dak Bunglow Chowk, Patna-800001.
20. Regional Executive Director (ER-II), NTPC Ltd., 3<sup>rd</sup> 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-700091.
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. General Manager (BD), NTPC Vidyut Vyapar Nigam Limited, SCOPE Complex, Core-5, 1<sup>st</sup> & 2<sup>nd</sup> Floor, Lodhi Road, New Delhi-110003.
29. The Head (Marketing), Tata Power Trading Company Limited, B-12/13, 2<sup>nd</sup> Floor, Shatabdi Bhavan, Sector-4, Noida-201301, Uttar Pradesh.
30. Executive Director (Generation), 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, 5<sup>th</sup> Floor, 2/1A Sarat Bose Road, Kolkata-700020.
33. Vice President & 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, 2<sup>nd</sup> Floor, Nelson Mandela Road, Vasant Kunj, New Delhi-110070..
35. Managing Director, Teesta Urja Limited, 2<sup>nd</sup> Floor, Vijaya Building, 17 Barakhamba Road, New Delhi-110001.



Minutes

of

**40<sup>th</sup> ERPC Meeting**

of

**EASTERN REGIONAL POWER COMMITTEE**

**Date: 16<sup>th</sup> March, 2019**

**Venue: Jodhpur**



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# **EASTERN REGIONAL POWER COMMITTEE, KOLKATA**

## **MINUTES OF 40<sup>TH</sup> ERPC MEETING**

**Date: 16<sup>th</sup> March, 2019 (Saturday)**

**Place: Jodhpur**

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**In Chair:** Shri. Hemant Sharma, Chairperson, ERPC & Chairman-cum-Managing Director, GRIDCO Ltd. & OPTCL and Commissioner-cum-Secretary, Dept. of Energy, Govt. of Odisha.

**Host:** NHPC

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

**Shri. Hemant Sharma, Chairperson, ERPC & Chairman-cum-Managing Director, GRIDCO Ltd. & OPTCL and Commissioner-cum-Secretary, Dept. of Energy, Govt. of Odisha.,** welcomed all the distinguished participants in the 40<sup>th</sup> ERPC Meeting including the special guests from Bhutan. He thanked NHPC for making excellent arrangement for the meeting and extending warm hospitality to all the participants.

He highlighted the following points in his address:

- CERC has brought out the 4<sup>th</sup> Amendment to the DSM Regulations. This Regulation has become effective from 01.01.2019. Besides narrowing the frequency band, this amendment has introduced a few concepts like penalty due to non-compliance of sign change, Area Clearing Prices in DSM etc. While implementing the new DSM Regulations, it has been found out that there are certain grey areas which need to be addressed. Further, the percentage of time the frequency remaining within the IEGC Band has decreased to 70% from nearly 80%, contrary to the expectation. This needs to be probed. ERPC Secretariat organised a number of workshops on the DSM Regulation for ensuring smooth implementation and for highlighting the issues which need to be addressed.
- Recently, the Commission has decided to introduce the concept of Security Constraints Economy Despatch (SCED) on pilot basis w.e.f. 01.04.2019. Efficient ISGS plants and plants whose tariffs are determined by CERC will get priority in generation schedule over the costlier plants having high energy charges. The overall production cost shall

come down significantly. However, no methodology has been spelt out regarding the utilisation of the excess fund generated in the pool. It is suggested that before implementation on large scale basis, the sharing methodology of the fund generated in the pool should be clearly spelt out.

- Hon'ble CERC in its order dated 20.09.2017 had revised the COD date of Unit 4 of Barh STPS – II. In line with the above order of CERC, ERPC Secretariat had issued the revised REA, DSM, RTA, RTDA etc. Subsequently, NTPC filed an appeal before APTEL against the CERC order. APTEL in its recent judgement has dismissed the appeal of NTPC and upheld the impugned order dated 20.09.2017 passed by CERC. In the last Commercial Committee Meeting held on 18.02.2019, there was no convergence on the interpretation of CERC order regarding treatment of excess payment received by NTPC prior to revised date of COD of Unit 4 of Barh STPS – II. This needs to be decided in ERPC Forum.
- We are all aware that there were severe constraint in evacuation of power from Sikkim. However, 400kV Rangpo – Kisanganj line, 400kV Teesta III – Kisanganj line and 400kV Dikchu – Rangpo lines are now fully functional. This would give great flexibility in ensuring evacuation of Hydropower during the coming monsoon season.
- Last year Bhutan had made a net import of power from India during winter season. As per the request of Bhutan, ERPC decided to have a special treatment to resolve this issue. It was expected that, in this year, with the commissioning of Mangdechhu Hydropower station in Bhutan, the problem would not recur. However, the commissioning of Mandechu Hydropower station has been delayed. As a result, this year also Bhutan has made the net import of power during winter season. Bhutan has requested to settle the import of power based on the methodology finalised in the last year.
- FRAS on pilot basis has been introduced in Teesta – V and Rangit HEP of NHPC as per the CERC order. However, it is found out that the imbalance exist at the end day between the total up and down schedule. This is having financial implication. This needs to be addressed.
- A number of projects in the Eastern Region have been approved under PSDF Scheme. The pace of implementation is quite slow for some of the projects. Recently, Ministry of Power, Government of India undertook a meeting regarding implementation of the projects and disbursement of the fund. It is apprehended that the funds allocated to the slow moving projects might be diverted to the other projects of the country. Therefore, the



onus is on the utility constituents to ensure timely completion of the projects being funded by PSDF.

- ERPC Secretariat has been holding a number of workshops regularly on different topics like POC charge Calculation, PoC Bill Settlement, DSM, Draft Tariff Regulations, Renewable Integration, Smart Grid, Protection system etc. The workshops have helped the Eastern Regional Constituents to update and enrich their knowledge.

**Shri J. Bandyopadhyay, Member Secretary, ERPC** welcomed Shri. Hemant Sharma, Chairperson, ERPC & Chairman-cum-Managing Director, GRIDCO Ltd. & OPTCL and Commissioner-cum-Secretary, Dept. of Energy, Govt. of Odisha and other members of ERPC and TCC. He also welcomed the other participants including the special guests from Bhutan. He expressed his sincere thanks to NHPC for hosting the 40<sup>th</sup> 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 39<sup>TH</sup> ERPC MEETING**

The minutes of the 39<sup>th</sup> ERPC meeting held on 17.11.2018 in Jaipur were issued and uploaded on ERPC website ([www.erpc.gov.in](http://www.erpc.gov.in)) vide ref. no. ERPC/TCC&Committee/14/2016/6731-6800 dated 18.12.2018.

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

Members may confirm the minutes of 39<sup>th</sup> ERPC meeting.

#### **Deliberation in the ERPC Meeting**

*Members confirmed the minutes of 39<sup>th</sup> ERPC Meeting.*

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

ERLDC would give a brief presentation on the performance of the grid during November'18 to February'19 and highlight the issues and challenges.

### **Deliberation in the ERPC Meeting**

*ERLDC gave a detailed presentation on the grid highlighting the performance of the grid in terms of frequency, demand, exports, DSM etc. The presentation is enclosed at Annexure-2. The presentation was appreciated by the members.*

## ITEM NO.3: ISSUES REFERRED TO ERPC BY TCC IN ITS 40<sup>th</sup> MEETING HELD YESTERDAY

<b>ITEM NO. 3.1:</b>	<b>Implementation of DSM (4th amendment) Regulations, 2018 – Concerns raised by various utilities of Eastern Region</b>
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**NHPC:** As per CERC DSM Regulation, (4<sup>th</sup> Amendment issued by CERC vide order no. L-1/132/2013-CERC dated 20/11/2018) in the event of sustained deviation from schedule in one direction by any regional entity, such Regional entity shall have to change sign of their deviation from schedule at least once after every 6 time blocks. The violation under this clause attracts additional charges of 20% on the daily DSM payable/receivable.

For Rangit Power Station (3X20MW), NHPC vide letter no. NH/O&M/GMC/223 dated 24.01.2019 (Copy enclosed at Annexure – B1a), have intimated that when machines are not operational (Off peak hour in lean season) and schedules is zero the actual transmission figures are non-zero resulting in deviation from schedule. In this scenario, when there is no injection of power from Rangit, the actual transmission figures are beyond control of Power Station, therefore it is not possible to do the sign reversal of deviation from schedule as stipulated in the above said regulations resulting in additional deviation charges to NHPC.

Similar case also existed in Northern Region, which was taken up with NRPC in the 155th OCC Meeting of NRPC held on 17th January 2019, wherein it was decided that "where injection schedule given to the generator is zero and the power from the grid is being drawn by the generator for their auxiliary consumption, in such scenario, no "additional Charge" for sustained deviation shall be imposed".

Accordingly, the Deviation Settlement Account for the week 31st December 2018 to 06th January 2019 has also been issued by NRPC on above assumptions.

In view of above, NHPC requested that when there is no injection from Rangit Power House or in such cases, the additional charge as Penalty on sign change may not be considered.

**TUL:** The generation schedule of Teesta-III HEP is 'zero', only grid power is flowing through Teesta-III HEP bus-bar. During such period additional deviation charges have been imposed on Teesta-III HEP, due to no sign change. We have been penalized to the tune of ₹1.75 lacs as DSM charges for the period of 01-Jan-2019 to 20-Jan-2019 by ERPC.



Since our generation schedule is zero, we should not be penalized due to flow of grid power through Teesta-III bus bar. (Copy of email enclosed at Annexure – B1b)

**CHUZACHEN:** When the generation schedule for Chuzachen HEP is zero, Chuzachen HEP acts as a LILO for the 132 KV Rangpo-Chuzachen-Gangtok Circuit. The direction of power flow on this circuit is dependent on the grid conditions due to which Chuzachen HEP should be exempted from the sign change rule as we have no role to play in the import or export of power under this condition on this circuit.

Chuzachen is a run-of -river plant with restricted pondage. During the transitional months of May to June; there are sudden increases of hydrology in the Himalayan region and a 1% cap for additional generation is not enough to utilize the water potential available then as reservoir storage will be exceeded. Hence for transitional months; additional generation cap should be sufficiently increased as loss of water is a loss of revenue for the company as well as the nation.

**DANS ENERGY:** DANS Energy vide letter no. DEPL/JLHEP/O&M/18-19/ERLDC/001, dated 12.02.2019 informed that Additional Deviation Charges have been imposed on DEPL in respect of Jorethang Loop HEP for the period from 01.01.2019 to 27.01.2019 due to Sign Change violation penalty. This is on account of negative power being captured by Special Energy Meters at New Melli Grid Pooling Station, which has been installed by PGCIL during zero schedule power by Jorethang Loop HEP and without any import/start up power from grid to DEPL during the plant shut down period.

**KBUNL:** KBUNL vide letter no. KBUNL/COMML/1584 dated 14.02.2019 (Copy enclosed at Annexure – B1c) has requested that Additional Deviation Charges for over-injection by a Central Sector Generating Station, whose tariff is determined by Hon'ble CERC, when grid frequency is 50.05Hz & above, the rate of DSM applicable should be ACP or ECR (lesser of the two).

**HVDC PUSAULI & ALIPURDUAR:** Powergrid has submitted that quantum of auxiliary power consumption at any point of time through HVDC depends on the load flow through the system which is dependent on demand and supply situation of the grid and is beyond their control. Hence, Powergrid has requested that deviation from schedule on account of auxiliary power drawn for their HVDC stations should be exempted from sign change violation penalty.

*In 39<sup>th</sup> CCM, Members unanimously decided the followings:*

*i) Power drawn by a generator against “ZERO” schedule shall exempted from penalty due to sign change violation.*

*ii) Power injected by a generator against “ZERO” schedule shall NOT be exempted from penalty due to sign change violation.*

*iii) If the drawal schedule of a utility is equal to or less than 3 MW, no penalty shall be imposed against the sign change violation.*

*iv) Regarding the issue raised by KBUNL, it was decided that for any over-injection by Generators at grid frequency 50.05Hz or above, ADC shall be applicable at ACP.*

*v) The above decisions shall be placed in the TCC and ERPC meeting for concurrence.*

vi) *On receipt of the concurrence, the same shall be implemented retrospectively w.e.f. 01.01.2019.*

vii) *However, the decision of CERC, if any, on this issue shall prevail.*

*In 154<sup>th</sup> OCC, it was observed that the % of time of frequency remaining within the IEGC had been decreased to 70% in January, 19 w.r.t. 78% in January, 18. Similarly % of time of grid frequency greater than 50.05 Hz had been increased to 19% in January, 19 w.r.t. 11% in January, 18. This trend was contrary to the expectation as amended DSM Regulation has come into force from 01.01.2019.*

*ER constituents opined that the frequency shown by the ERLDC is 15 min average frequency which is deviating from IEGC band whereas the instantaneous frequency is much fluctuating after implementation of new DSM regulation.*

*Member Secretary, ERPC highlighted the issue of imposition of penalty based on sign change on the generator against “ZERO” schedule. He also highlighted the issue of imposition of sign change penalty for marginal drawal schedule. He informed the OCC members regarding the decision taken in the last commercial Sub-Committee meeting to resolve the issue.*

*ERLDC added that BSPTCL and Odisha are perfectly maintaining their drawal as per the schedule whereas Jharkhand and Sikkim are paying huge amount of DSM charges.*

*OCC advised Jharkhand and Sikkim to maintain the drawl as per the schedule.*

*TCC may discuss.*

### **Deliberation in the TCC Meeting**

*Member Secretary explained the salient features of the DSM (4<sup>th</sup> Amendment) regulation including the experience of implementation of same by Eastern region. He informed that a number of letters have been received from NHPC, TUL, Chuzachen, DANS Energy, KBUNL, Powergrid and NVVN etc. highlighting the grey areas in the regulation which are affecting them.*

*After detailed deliberation, TCC interpreted the DSM(4<sup>th</sup> Amendment) Regulation as follows:*

- a) Power drawn by a generator against “ZERO” schedule shall be exempted from penalty due to sign change violation.*
- b) Power injected by a generator against “ZERO” schedule shall NOT be exempted from penalty due to sign change violation.*
- c) If the deviation against schedule touches “ZERO” value in any time block, that should be taken as sign change.*
- d) These shall be implemented retrospectively w.e.f. 01.01.2019.*
- e) The decision of CERC, if any, subsequently on this issue shall prevail.*



*Further TCC recommended the followings:*

- i) For the export of power to Bangladesh through HVDC, NVVN was advised to keep the set point of HVDC for the time block as per the schedule which will ensure zero deviation from the schedule.*
- ii) Powergrid has already filed a petition in CERC regarding exemption from sign change violation for the power drawn by the HVDC stations. If CERC issues any order in this regard, the same shall be complied with.*
- iii) The constituents shall write to ERPC secretariat within ten days highlighting the difficulties being faced by them in implementing the DSM 4<sup>th</sup> Amendment including the grey areas in the regulation that needs to be addressed.*
- iv) ERPC Secretariat after compiling the views of the constituents of the ER shall take up the matter with CERC for addressing the issues.*
- v) The issue of mismatch of SCADA data vis-à-vis SEM data as raised by WBSedcl and WBPdcl shall be discussed in SCADA meeting.*

*TCC referred the issue to ERPC for further guidance.*

ERPC may guide.

### **Deliberation in the ERPC Meeting**

*ERPC accepted the recommendations of TCC.*

<b>ITEM NO. 3.2:</b>	<b>Import of Power by Bhutan in 2019</b>
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DGPC Bhutan vide letter no. DGPC/O&MD/23/2018/437 dated 04.02.2019 intimated that 1<sup>st</sup> unit of 720MW Mangdechhu HEP, which was supposed to be commissioned in 2018, is still not commissioned due to unavoidable circumstances. It is expected to be commissioned by end of February 2019 if all the works get executed as per the planned schedule.

Due to this, Bhutan has imported a net energy of 11.291923MU from India in the month of January 2019. This net import of power by Bhutan from India may continue during the months of February & March 2019 as well till the 1<sup>st</sup> unit of MHEP is commissioned.

ERPC Secretariat had convened a meeting on 13.07.2018 to finalize the treatment of import of power by Bhutan during February and March 2018. In the meeting ERPC Secretariat and Director (O&M), DGPC Bhutan gave detailed presentations. It was observed that the entire anomaly has arisen due to non-existence of any suitable tariff between India and Bhutan for import of power by Bhutan. ERPC Secretariat had first adjusted the import of power by Bhutan during Feb-2018 and Mar-2018 from the export of power to India during Apr-2018 and thereafter segregated the balance power into Tala & Chukha components. However, Bhutan has prepared the accounting based on segregation of export of power to India during April 2018 into Tala & Chukha components first and thereafter made the adjustment of import of power during the months of Feb-2018 and Mar-2018.

In the meeting, it was unanimously decided that financial liability arising out of the methodology adopted by ERPC Secretariat for treatment of import of power by Bhutan shall be shared between India and Bhutan on 50:50 basis as a one-time settlement. The same methodology may be adopted for accounting and financial settlement of import of power by Bhutan during 2019 as well.

*In 39<sup>th</sup> Commercial Sub-Committee Meeting, members recommended that, as a special case, the issue of import of power by Bhutan this year should be resolved in line with the methodology adopted in the previous year. This shall be put up to TCC for approval.*

*In 154<sup>th</sup> OCC, Member Secretary, ERPC outlined the issues involved in accounting the power imported by Bhutan during winter this year due to delay in commissioning of Mangdechhu Hydroelectric Project in Bhutan. He also informed that the issue was discussed in details in the Commercial Sub-Committee meeting. The decision of Commercial sub-Committee in this regards was also conveyed in the meeting.*

*In line with the decision taken in the Commercial sub-Committee meeting, OCC also decided to refer this issue to TCC for further guidance.*

TCC may guide.

### **Deliberation in the TCC Meeting**

*Member Secretary, ERPC elaborated the issues involved in accounting of the power imported by Bhutan during this winter due to delay in commissioning of Mangdechhu Hydroelectric Project in Bhutan.*

*Bhutan has informed that even though as a whole Bhutan has imported power from India during winter, but in actuality the import has taken place only through NE Region i.e. through 132 kV Kurichhu system whereas Tala and Chukha power has been exported to India through Binaguri and Birpara. Bhutan has suggested that the power imported by India through Binaguri and Birpara should be treated as Tala and Chukha power and should be segregated as per the existing methodology. The import by Bhutan from NE Region should be adjusted against the segregated Tala power in future.*

*Member Secretary ERPC informed that an elaborate study has been done by ERPC through analysis of meter readings to ascertain any loop flow existed between Kurichu and Tala/Chukha system. It was found out no such loop flow existed. Therefore, he suggested that the proposal of Bhutan may be accepted.*

*TCC agreed to adopt the methodology as suggested by Bhutan.*

*TCC referred to ERPC for concurrence.*

ERPC may approve.

### **Deliberation in the ERPC Meeting**

*ERPC approved the methodology recommended by TCC.*

<b>ITEM NO. 3.3:</b>	<b>Implementation of differential protection for short distance lines in different substations connected to Powergrid ER-II</b>
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The Lines where line differential protection are to be implemented are as follows:

Sl. No.	Substation name	Name of the Line	Line length in km	Line owned by
1	Durgapur	220KV DGP (PG) - DVC Ckt.-I	1	DVC
2		220KV DGP (PG) - DVC Ckt.-II	1	DVC
3		400 kV DGP (PG) - Bidhan Nagar (WBSETCL) Ckt.-I	11	WBSETCL
4		400 kV DGP (PG) - Bidhan Nagar (WBSETCL) Ckt.-II	11	WBSETCL
5	Malda	132KV MLD (PG) - MLD (WBSETCL) Ckt.-I	5.94	WBSETCL
6		132KV MLD (PG) - MLD (WBSETCL) Ckt.-II	5.94	WBSETCL
7	Alipurduar	220KV ALPD (PG)- ALPD (WBSETCL) Ckt.-I	6.377	WBSETCL
8		220KV ALPD (PG) - ALPD (WBSETCL) Ckt.-II	6.377	WBSETCL
9	Birpara	132KV BRP (PG) - BRP (WBSETCL) Ckt.-I	0.3	WBSETCL
10		132KV BRP (PG) - BRP (WBSETCL) Ckt.-II	0.3	WBSETCL
11	Siliguri	132KV SLG (PG) - NJP (WBSETCL) Ckt.	10	WBSETCL
12		132KV SLG (PG) - NBU (WBSETCL) Ckt.	10	WBSETCL

In 68<sup>th</sup> PCC meeting, it was opined that differential protection should be implemented for all short lines (<20KM) to overcome relay co-ordination issues with respect to distance and over-current protection.

PCC in principle agreed and opined that differential protection at both the ends could be implemented by one entity to maintain the relay and communication compatibility.

PCC advised Powergrid to implement differential protection at both ends for the above lines.

*In 38<sup>th</sup> TCC Meeting, it was decided that the cost relating to implementation of fiber based differential protection scheme for both ends shall be borne by concerned utilities owning the line.*

Therefore, for retrofitting of the old relays budgetary offer has been collected from M/s GE ltd. Vide ref. no.-SPT001/PGCIL dated 22.05.2018. A BOQ has been prepared and the total financial implication comes to Rs. 1,30,27,200/- (One crore thirty lacs twenty seven thousands two hundreds only) including GST and other terms & conditions. Powergrid placed the proposal for

- Technical & administrative approval,
- Financial concurrence for Rs. 1,30,27,200/- (inclusive of GST),
- Execution of work through open tender basis

In 75<sup>th</sup> PCC, members agreed to the proposal and referred to Commercial Sub-Committee Meeting for discussion.

*In 39<sup>th</sup> Commercial Sub-Committee Meeting, members recommended for implementation of Differential protection for short distance lines in different substations of Powergrid ER-II at cost of Rs. 1,30,27,200/- (One crore thirty lacs twenty seven thousands two hundred only). This shall be put up to TCC for concurrence.*

TCC may approve.

### **Deliberation in the TCC Meeting**

*West Bengal and DVC agreed to implement the differential protection for lines at serial number 1 to 10.*

*West Bengal requested to review the implementation of differential protection for lines at serial number 11 & 12 in lower forums of ERPC and place a separate proposal if necessary, in next TCC meeting.*

*TCC in principle agreed for the cost implication and advised Powergrid to revise the cost excluding serial number 11 & 12.*

*TCC decided to refer the issue to ERPC for concurrence.*

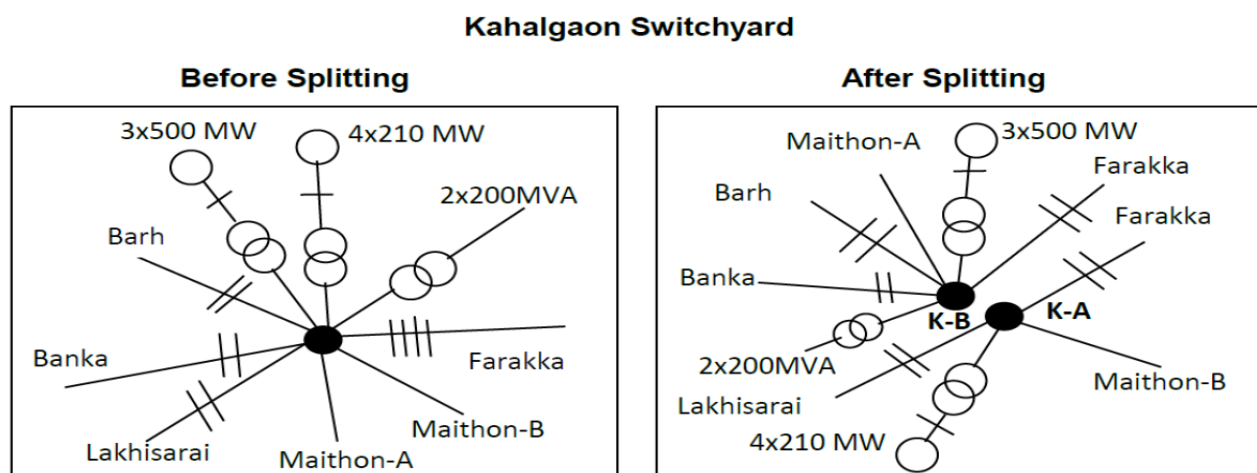
ERPC may approve.

### **Deliberation in the ERPC Meeting**

*ERPC approved the implementation of differential protection for the short distance lines mentioned under serial no. (1) to (10).*

<b>ITEM NO. 3.4:</b>	<b>Actual Generation Segregation methodology of NTPC Kahalgaon Stage-I &amp; II after Bus Splitting Scheme</b>
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The bus splitting scheme of 400kV Kahalgaon (NTPC) was discussed and agreed in principle in 11<sup>th</sup> Standing Committee meeting of Eastern region held on 20<sup>th</sup> Sep 2010 and completion of Bus splitting scheme is expected during Feb 2019. The bus splitting scheme is as follows:



As per the decision taken in 16<sup>th</sup> Commercial Sub Committee Meeting held on 23.02.2011, Kahalgaon NTPC Stage wise AG computation has to be done by apportioning AG (summation of all outgoing feeders) in proportion to stage wise GT. It was also decided to adopt this proposal as an interim measure. Accordingly, segregation of STG-I & STG-II generation of Kahalgaon (NTPC) as per above methodology was started w.e.f 01.04.2011 and the same is being followed till date.

Post bus splitting of Kahalgaon, the above methodology may be reviewed. Further, after implementation of Bus Sectionaliser, Meter (Main & Check) may be installed at both end of Bus Sectionaliser.

*In 39<sup>th</sup> CCM, it was decided to constitute a Committee with the following members to finalise the methodology to be adopted for segregation of actual generation of NTPC Kahalgaon Stage-I & II after implementation of bus splitting scheme:*

1. Sh. Shyam Kejriwal, SE, ERPC – Convenor
2. Sh. N. Ahmed, Manager, ERLDC
3. Sh. R.K. Mondal, AGM, NTPC-Kahalgaon
4. Sh. S.K. Singh, GM(AM), Powergrid (ER-I)

*A meeting of the Committee shall be convened at ERPC Secretariat and report shall be submitted to the upcoming TCC.*

*In line with 39<sup>th</sup> CCM, the Committee meeting was held on 4<sup>th</sup> March 2019. Minutes of the meeting are enclosed at **Annexure-B11**.*

NTPC may update the latest status.

TCC may guide.

### **Deliberation in the TCC Meeting**

*TCC approved the methodology finalised by the Committee which is enclosed at Annexure-B11.*

*NTPC informed that the bus splitting scheme would be implemented by April 2019.*

*TCC referred to ERPC for final concurrence.*

ERPC may approve.

### **Deliberation in the ERPC Meeting**

*ERPC approved the methodology recommended by TCC for segregation of actual generation of NTPC Kahalgaon Stage I & Stage II after implementation of bus splitting scheme.*



**ITEM NO. 3.5:****COD of U#4 (660MW) of Barh STPS –II of NTPC**

Hon'ble CERC in its order dated 20<sup>th</sup> September, 2017 in Petition No. 130/MP/2015 along with IA No. 67/2017 had revised the COD date of U-4 (660MW) of Barh STPS-II as 08/03/2016 in place of 15/11/2014 (Relevant page of CERC order is enclosed at **Annexure-B12a**).

Accordingly, in line with the above decision of CERC, ERPC had revised and issued the REA, DSM & RTA Accounts vide letter dated 12.01.2018 and RTDA Account vide letter dated 02.02.2018 respectively for the period from 15.11.2014 to 07.03.2016 (Copy enclosed at **Annexure-B12b**).

Subsequently, NTPC vide letter dated 18.10.2018 informed that they have filed an appeal before APTEL bearing Appeal No. 330 of 2017 against the above CERC order dated 20.09.2017. Along with the appeal NTPC vide IA No. 840 of 2017 also filed for stay of implementation of the CERC order dated 20.09.2017. In view of above NTPC requested ERPC to keep the revised Accounts in abeyance till the application of stay is decided by Hon'ble Tribunal. In reply, ERPC vide letter dated 19.01.2018 clarified that no stay order has been received till date.

Recently, APTEL has given its judgement for IA No. 840 of 2017 in Appeal No. 330 of 2017. APTEL in its order dated 25th January, 2019 has dismissed the Appeal of NTPC and upheld the impugned order dated 20/09/2017 passed by CERC in petition no. 130/MP/2015 stating that they are of the considered view that the issues raised in the appeal being Appeal No. 330 of 2017 are devoid of merits. (Relevant page of APTEL order is enclosed at **Annexure-B12c**)

Therefore, all the affected beneficiaries of Barh STPS-II along with NTPC and CTU/PGCIL are to initiate action towards settlement of the Accounts as issued by ERPC for the period from 15.11.2014 to 07.03.2016 for implementation of CERC order dated 20/09/2017.

As per the revised statement, beneficiary wise Deviation Charges receivable by NTPC Barh Stg-II Unit IV from the pool for infirm power injection for the period from 15.11.2014 to 07.03.2016 is ₹ 636.86 Cr as per the table below:

<b>Beneficiary</b>	<b>₹ (Crore)</b>
BSPHCL	564.8512231
JUVNL	41.0085656
GRIDCO	25.5745384
SIKKIM	2.7492379
MP(WR)	2.6757824
<b>Total</b>	<b>636.8593474</b>

Moreover, apart from the above, Deviation Charges also receivable by Barh STPS from the DSM pool for the above period is ₹ 63.1484181 Crores.

However, the beneficiaries will get refund of Energy Charges, Capacity Charges and Transmission Charges on account of BARH St-II Unit 4 Infirm for the period 15.11.2014-07.03.2016 which is also reflected in the revised statement.

*In 39<sup>th</sup> CCM, Member Secretary, ERPC informed that the power generated by U-IV (660MW) of Barh STPS-II during the period from 15/11/2014 to 07/03/2016 had been treated as infirm*

generation due to revision of COD date by the Hon'ble CERC vide order dated 20th September, 2017 in Petition no. 130/MP/2015. Accordingly, revised accounts were issued by ERPC Secretariat.

NTPC submitted that, as per the Order of CERC, excess payment, if any, received by NTPC during the above period shall be adjusted by NTPC against the capital cost. A letter in this respect has also been received from NTPC (Copy enclosed at **Annexure-B12d**). As and when the revised tariff order is issued by the Hon'ble Commission, NTPC shall revise the bills accordingly.

There were detailed deliberation on this issue. During deliberation, it emerged that there was no convergence on the interpretation of CERC order regarding treatment of excess payment received by NTPC during the period from 15/11/2014 to 07/03/2016.

It was decided to refer this issue to TCC.

Subsequently, GRIDCO wrote a letter to GM (Commercial), NTPC wherein GRIDCO has informed that they had provisionally estimated the refundable amount along with interest and adjusted in the monthly bill payable during the month of December 2018 and January 2019. Copy of the letter is enclosed at **Annexure-B12e**.

TCC may guide.

### **Deliberation in the TCC Meeting**

Member Secretary, ERPC elaborated on the issue. He informed that the basic issue lies in the treatment of the excess payment received by the NTPC during the period from 15.11.2014 to 07.03.2016. ERPC Secretariat has already issued the revised REA, DSM, RTA and RTDA accounts. But NTPC has contended that as per the order of CERC, excess payment if any received by NTPC during the above period shall be adjusted by NTPC against the capital cost.

In this connection, NTPC informed that the tariff petition for Barh stage II was heard by CERC on 13.03.2019. During the hearing, the honourable CERC held that adjustment due to revised COD shall be made only in the capital cost of the project. On being informed that GRIDCO has already deducted some amount from the running bills of NTPC, the bench directed that the same should be refunded immediately. Further, no such action may be taken by any of the other beneficiaries. The hearing was also attended by counsel for GRIDCO and Bihar.

Director(Commercial), GRIDCO informed that CERC order dated 20.09.2017 in petition no 130/MP/2015 has directed that

*“The revenue earned over and above fuel cost from the sale of infirm power from 15.11.2014 shall be adjusted in the capital cost”*

He argued that the excess payment received by NTPC was not on account of infirm power and therefore the excess payment received by NTPC on account of fixed and energy charges shall be fully refunded to the concerned beneficiaries.

Bihar, Jharkhand and Sikkim endorsed the views of GRIDCO.

*ERLDC submitted that the issue needs to be resolved at the earliest for proper reflection of outstanding DSM charges.*

*TCC referred the issue to ERPC for further guidance.*

ERPC may guide.

### **Deliberation in the ERPC Meeting**

*After detailed deliberation, members unanimously resolved that, since there is no convergence on this issue between NTPC and the beneficiaries of Barh STPS-II, the same could not be resolved in ERPC forum. ERPC suggested that the concerned constituent(s) might take up the issue suitably in appropriate higher level.*

<b>ITEM NO. 3.6:</b>	<b>IMPLEMENTATION OF 4<sup>TH</sup> PHASE AMR INCLUDING REQUIREMENT OF AMR DATA FOR SCADA DATA COMPARISON</b>
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In 39<sup>th</sup> ERPC Meeting, ERPC accorded the approval for procurement and installation of AMRs under 4<sup>th</sup> phase in the Eastern Region at an estimated cost of **Rs. 1.75 Crore** in place of Rs. 93.56 Lakh as approved earlier in the 37<sup>th</sup> ERPC Meeting. ERPC suggested that Power Grid should ensure reliability in data transmission by implementing LAN connectivity through OPGW Network wherever feasible.

In 153<sup>rd</sup> OCC, Powergrid informed that the works had been awarded to M/s TCS on 23<sup>rd</sup> December 2018 at a cost of **Rs.1.69 Cr** after negotiation.

Powergrid added that the work would be completed by October 2019.

In 39<sup>th</sup> CCM, Powergrid informed that LOA for 4th phase has been placed.

ERLDC informed about the expiry of phase wise AMC of AMR for existing location and meters from April 2019 onwards. Powergrid further informed that Phase wise expiry of AMC is commencing from June 2019 onward and Comprehensive AMC plan is being prepared and the same shall be put up separately.

Thereafter, Powergrid vide mail dated 1<sup>st</sup> March 2019 submitted that as per 1<sup>st</sup> phase LOA, AMC for 656 SEM's which are integrated in Phase-I of AMR implementation, will be start expiring from Jun-2019 & will be completely finished in Jun-2020. As off now it is observed that there are some teething problem faced during the entire span of the operation & having AMC will be prudent to counter any deficiency faced in the installed system. Details of the first phase details are as follows:-

- Total Number of Meters connected: 656
- Total DCU Installed: 129

As per the above mentioned LOAs of AMR Phase-1, total 656 no of meters have been integrated with AMR system. As per the LOA, the contract was for one year warranty and 4 years AMC after receiving TOC from ERLDC.

*As per discussion held in 39<sup>th</sup> CCM, PGCIL already requested TCS to submit a new proposal for renewing the AMC. The new AMC will be till Nov-2024. It may be noted that, in AMC price there are some component considered which has already passed useful life & replacement also envisaged in the package.*

***Comprehensive AMC Ballpark Value: 4,16,68,201.00 INR (Excluding GST).***

*Scope of work is enclosed at Annexure-B16.*

*However, the proposal is at initial stage only, further deliberation & discussions will be held with the vendor for finalizing the value and scope.*

*In view of above, PGCIL is requested to review the same proposal & provide in principle approval for further processing of the renewal of AMC (First Phase).*

TCC may approve.

### **Deliberation in the TCC Meeting**

*TCC noted the revised cost of **Rs.1.69 Cr** for implementation of 4<sup>th</sup> phase of AMR against the earlier approved estimated cost of Rs 1.75 Cr.*

*TCC accorded the approval for entering AMC with OEM by Powergrid for a period of five years at an estimated value of **Rs.4.17 Cr (excluding GST)** for 656 SEMs which were integrated in phase 1 of AMR implementation.*

*The cost sharing mechanism of AMR shall also be applicable for sharing of the AMC charges.*

*TCC referred to ERPC for concurrence.*

ERPC may approve.

### **Deliberation in the ERPC Meeting**

*ERPC accepted the revised cost of Rs. 1.69 Cr for implementation of the 4<sup>th</sup> phase of AMR against the earlier approved estimated cost of Rs. 1.75 Cr.*

*ERPC also authorised Powergrid to enter AMC with OEM for a period of five years at an estimated cost of Rs. 4.17 Cr(excluding GST) for 656 SEMs which are integrated in phase-I of AMR implementation.*

*ERPC also accepted the cost sharing mechanism as decided in TCC.*

<b>ITEM NO. 3.7:</b>	<b>Installation of PMUs for observation of the dynamic performance of STATCOMS</b>
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In 39<sup>th</sup> ERPC Meeting, it was decided that,

- i. Power Grid shall immediately place an order on M/s GE for supply and installation of 4 nos. PMUs for 4 STATCOMs in the Eastern Region at an estimated cost of Rs. 40 Lakh.
- ii. The cost of the above should be included within the quantity variation clause under the URTDSM Project funded from PSDF.
- iii. Powergrid shall approach the PSDF Appraisal Committee for inclusion of the above under the quantity variation clause under the URTDSM Project.
- iv. In case PSDF funding for this addition supply and installation is not available, then the cost of PMUs including the installation cost (approx. Rs.40 Lakh) shall be included under the project “Upgradation of SCADA / RTUs / SAS in the Central Sector Stations and strengthening of OPGW network”.

In 153<sup>rd</sup> OCC, Powergrid informed that M/s GE had agreed to supply and install of 4 nos PMUs for 4 STATCOMs in the Eastern Region within the quantity variation clause under the existing URTDSM Project.

Powergrid may update.

### **Deliberation in the TCC Meeting**

*Powergrid informed that amended order has been placed to M/s GE. The materials are expected to be delivered by May 2019 and commissioning would be completed by July 2019.*

*Powergrid added that the cost would be booked under the STATCOM project, not against the quantity variation clause under the existing URTDSM project.*

*TCC agreed.*

ERPC may approve.

### **Deliberation in the ERPC Meeting**

*ERPC noted the decision taken in the TCC.*

<b>ITEM NO. 3.8:</b>	<b>Approval for the bay swapping arrangement for Commissioning of 1 no 125 MVAR Bus Reactor and 1 no 400 kV line bay at Baharampur under ERSS-XV</b>
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Under ERSS-XV, apart from 400 KV Berhampur-Farakka-D/C (Twin HTLS), one no, 125 MVAR Bus Reactor also envisaged to control persistent over voltage at Berhampur S/S.

In 138<sup>th</sup> OCC meeting, it was decided to commission above reactor on urgent basis to control voltage problem around Berhampur. Accordingly, Powergrid commissioned above reactor at the allotted Bay 406 as per the scheme ERSS-XV on priority basis to resolve voltage problem issue (DOCO: 30.03.2018).

For commissioning of the above reactor at the allotted Bay 406, one ckt of existing line (400 KV Farakka-Berhampur-S/C) which was connected at bay 406 was shifted to newly constructed 412 Bay as an interim arrangement till the line was shifted to Sagardhigi on 28<sup>th</sup> July 2018.

Thereafter, 400 KV Farakka-Berhampur-D/C line (twin HTLS) was charged at bay 409 & 412 on 1<sup>st</sup> September 2018.

Therefore, commissioning of one no 125 MVAR Bus Reactor and utilization of one no new 400 kV line bay at Berhampur from 30.03.2018 under ERSS-XV may please be agreed.

Powergrid may explain.

### **Deliberation in the TCC Meeting**

*TCC noted that the installation of the reactor was helpful in controlling the voltage at Berhampore. The requirement of reactor was also recommended by OCC.*

*TCC recommended post-facto approval of the commissioning and utilization of one number new 400 kV line bay (bay no 412) at Berhampur from 30.03.2018 to facilitate the installation of 125 MVAR bus reactor.*

*TCC referred to ERPC for concurrence.*

*However, TCC advised Powergrid to intimate such cases in time in future.*

*Powergrid agreed to comply with this.*

ERPC may approve.

### **Deliberation in the ERPC Meeting**

*As recommended by TCC, ERPC accorded post-facto approval for commissioning of 400 kV line bay (bay no 412) at Berhampur w.e.f. 30.03.2018.*

## **ITEM NO.4: PRESENTATION ON INDIAN POWER SECTOR SCENARIO IN 2030 BY CENTRAL ELECTRICITY AUTHORITY (CEA)**

At present, the Indian Power Sector is dominated by coal based power plants. This leads to emission of pollution (SO<sub>x</sub>, NO<sub>x</sub> Particulate Matters etc.) into the environment and its consequent impact on health & climate. Keeping all these in views Government of India has drawn ambitious plan of capacity addition from Renewable Energy Sources. The total capacity of the Renewable Energy Sources is programmed to touch 175 GW by March, 2022. Central Electricity Authority (CEA) being the technical arm of Ministry of Power, Government of India is intimately associated with drawing up the future plan of Indian Power Sector. Central Electricity Authority (CEA) has carried out the studies regarding the Power Sector scenario in 2030.



Central Electricity Authority (CEA) has been invited to give a presentation on the scenario of the Indian Power Sector in 2030.

CEA may present.

### **Deliberation in the ERPC Meeting**

*CEA gave a presentation highlighting the penetration of RES in future including its curtailment under different scenarios. The presentation is enclosed at **Annexure-4**. The presentation was highly appreciated by the members of ERPC. It was suggested that detailed state wise study as well as plant wise study might be conducted to have greater insight.*

### **ITEM NO.5: 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.

### **Deliberation in the ERPC Meeting**

*Director(HR), POSOCO gave an interactive presentation on the initiatives taken by POSOCO towards Capacity Building of SLDCs. The presentation is enclosed at **Annexure-5**. She urged the ER constituents to have wider participation and involvement in these initiatives.*

### **ITEM NO.6: 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 from the funds which require approval of ERPC :

#### **6.1: EXPENDITURES INCURRED FROM 'ERPC ESTABLISHMENT FUND'**

i) Expenditure of Rs.1,51,673/- towards cost of air tickets and travelling allowances of ERPC Secretariat Officers for organising and attending workshop in Bhutan from 23.10.2018 to 25.10.2018.

ii) Expenditure of Rs.6752 towards travelling allowances of ERPC Secretariat Officers for attending 39<sup>th</sup> TCC and ERPC meetings in Jaipur on 16.11.2018 and 17.11.2018. Expenditure

of Rs.1,02,072 towards cost of air tickets has already been approved by ERPC in 39<sup>th</sup> ERPC meeting.

iii) Expenditure of Rs.4,62,560 towards payment to CESC Limited for organising workshop on “Enhancing Managerial Skills” through Asia Institute of Power Management of CESC at IMI, Kolkata on 04.02.2019.

iv) Expenditure of Rs.60,000/- towards payment of honorarium to the faculties of training-cum-workshop on ‘Sub-station and Transmission Line Protection’ at ERPC from 11.02.2019 to 13.02.2019.

v) Expenditure of Rs.3,50,482/- spent on the workshop held at Upper Kolab HEP of OHPC.

Members may approve the above expenditures.

### **Deliberation in the ERPC Meeting**

*ERPC approved the above expenditures.*

### **6.2: EXPENDITURE INCURRED FROM ‘ERPC FUND’**

i) Expenditure of Rs. 75,402/- towards payment to Manor Floatel Limited for holding 152<sup>nd</sup> OCC meeting on 17.12.2018 at Floatel in Kolkata.

Members may approve the above expenditure.

### **Deliberation in the ERPC Meeting**

*ERPC approved the above expenditures.*

### **6.3 SANCTION OF RS. 10 LAKHS FROM ERPC ESTABLISHMENT FUND FOR HOLDING WORKSHOPS / SEMINARS FOR THE YEAR 2019 – 2020**

ERPC Secretariat has been regularly organising interactive Workshops /Seminars on important topics like PoC, DSM, Black Start & Restoration, and Smart Grid etc. These Workshops are widely attended by the constituents. The interactive sessions have proved to be very useful to the constituents in updating and enriching their knowledge.

In the 37<sup>th</sup> ERPC meeting, an amount of Rs. 10 Lakh was sanctioned from ERPC Establishment Fund for organising the workshops during 2018-19. Utilising the fund, the following workshops were arranged:

- i) A two day workshop was organised at Upper Kolab on Emerging Issues in Power Sector and on Black Start of Upper Kolab Units
- ii) A one day workshop at AIPM(CESC) on enhancing managerial skill
- iii) A three day training program at ERPC on Substation and Transmission Line Protection

Considering Rs. 3,50,482/- spent on the workshop held at Upper Kolab HEP of OHPC, the total expenditure for the year 2018-19 works up to Rs.8,73,042/-.

It is proposed that an amount of Rs. 10 Lakh may please be sanctioned from ERPC Establishment Fund for organising workshops during 2019-20 on emerging issues of Power Sector.

ERPC may approve.

### **Deliberation in the ERPC Meeting**

*ERPC approved Rs.10 lakhs from ERPC Establishment Fund for 2019-2020 for organising workshops on emerging issues in power sector.*

### **6.4 SIMULATOR TRAINING AT BAKRESWAR THERMAL POWER PROJECT (BKTPP)**

A proposal has been received from Bakreswar Thermal Power Project (BkTPP) for imparting Simulator Training at Bakreswar Thermal Power Project. The programme shall include the followings:

- 1) System familiarization (Theory along with equipment start /stop from desk in simulator)
- 2) Plant Visit
- 3) Unit light up to Synchronisation ( Theory plus Simulator)

Charges for the above training for 6 days is Rs. 16,000/- + GST @ 18% per head.

It is proposed to impart the training to a batch of 15/16 engineers consisting of Power Station Engineers and the Control Room Engineers of the Eastern Region.

The cost incurred therein shall be paid from **ERPC Establishment Fund**.

ERPC may approve.

### **Deliberation in the ERPC Meeting**

*ERPC approved the proposal of imparting simulator training at Bakreswar to a batch of 15/16 engineers consisting of Power Station Engineers and the Control Room engineers of the Eastern Region. The necessary cost shall be booked against the ERPC Establishment Fund.*

## **6.5 EXPENDITURES FROM ERPC ESTABLISHMENT FUND FOR IT RELATED WORKS**

The following expenditures for Digitization of ERPC office would be incurred from ERPC Establishment Fund in continuation of the approvals in 36<sup>th</sup> ERPC meeting:

<b>Sl.No</b>	<b>Item of Expenditure</b>	<b>Expenditure (Exclusive of taxes)</b>
1	AMC of all Software packages of ERPC (i.e. Asset Management System (AMS), Document Management System (DMS), DSM & RTDA Software, Reactive, RRAS & Employee management Software of ERPC), Mobile App “purvSHAKTI” & Website of ERPC	24,00,000
2	Software package for Regional Energy Accounting as per Tariff Regulations, 2019 (estt before taxes)—Qtn awaited	<b>25,00,000</b>
3	Repair/Restoration of NAS Storage of DMS and Back up software	2,00,000

ERPC may approve.

### **Deliberation in the ERPC Meeting**

*ERPC approved the above expenditures. For development of software package for REA, limited tenders shall be invited from the vendors having proven expertise of executing similar type of works preferably in other RPCs.*

## **6.6 HOLDING OPERATION CO-ORDINATION COMMITTEE (OCC), PROTECTION SUB- COMMITTEE (PCC), COMMERCIAL COMMITTEE (CC) MEETINGS OUTSIDE ERPC SECRETARIAT**

ERPC Secretariat has started holding the OCC Meetings at different Power Plants. Holding OCC Meetings at plant level is a win-win situation for both the members of OCC as well as the power station engineers who get exposed to the vital operation issues of the region. Also, the

OCC members get to know the ground realities in which the plants operate. This practice of holding the OCC meeting at different places is followed in other regions also.

Keeping in views, the 151<sup>st</sup> & the 154<sup>th</sup> OCC meetings were held at NTPC Farakka in November, 2018& at Mejia TPS of DVC in February, 2019. The 156<sup>th</sup> OCC Meeting is going to be held at Kahalgaon STPS of NTPC in the month of April, 2019.

ERPC Secretariat also held the 152<sup>nd</sup> OCC Meeting at Floatel, Kolkata. An amount of Rs. 75,402/- (Rupees Seventy five thousand four hundred two only) was spent for the above meeting.

Further, due to laying of pipes in the Golf Club Road, Kolkata, approach to ERPC through car has been severely restricted. This would create inconvenience to the participants in the meeting. So the OCC and PCC meetings for March'2019 is required to be held at some other venue.

ERPC may approve the followings:

- i) Organising a few OCC/PCC/CC Meetings at Plant Level on rotational basis in a year.
- ii) Authorising ERPC Secretariat to occasionally organise OCC Meetings at a different venues in Kolkata. The expenditure incurred therein shall be paid from ERPC Fund.

### **Deliberation in the ERPC Meeting**

*ERPC authorised Member Secretary to organise OCC/PCC/CC meeting at a different venue Kolkata, ERPC Secretariat if there is definite constraints in organising the same at ERPC Secretariat, Kolkata. The expenditure incurred therein shall be paid from ERPC Fund.*

*Member Secretary explained the need to organise a few OCC meetings at different plants on rotational basis under the aegis of the power plant authorities. ERPC suggested to amend the Conduct of Business Rules to incorporate this. It was decided that, till then, except few OCC meetings on rotational basis at Power Plant site, other meetings shall be preferably held at Kolkata.*

### **6.7 ENHANCEMENT OF HONORIUM OF SRI SUMIT CHATTERJEE, CONSULTANT**

Sri Sumit Chatterjee has been working at ERPC Secretariat during the last few years. He is at present drawing a monthly honorarium of Rs.25,000. It is proposed to enhance it to Rs.28,000 per month.

ERPC may please approve.

### **Deliberation in the ERPC Meeting**

*ERPC approved the proposal of ERPC Secretariat for enhancing the monthly honorarium of Sri Sumit Chatterjee, Consultant, to Rs.28,000 per month*

#### **ITEM NO.7 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 31<sup>st</sup> 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.

The vendor has completed the 1<sup>st</sup> Year Support Period starting from 01.11.2017 to 31.10.2018 and submitted a bill for ₹ 71,64,951/- (Rupees Seventy one Lakhs Sixty four Thousand Nine Hundred and Fifty One only) which is 20% of contract value for the 5 year support period. In this regard it is to mention that the partial payment has been made subject to the final concurrence of ERPC board.



A committee comprising of Officers of ERPC has been formed for verification of the works carried out by M/S PRDC during the 1<sup>st</sup> year Support Period. As scrutinized and verified by the committee the following works has been satisfactorily done by PRDC during the subjected Support Period:

- i. Conducted four nos. of 5 days Training programmes (2 days for PDMS and 3 days for MiP-PSCT) in the States of Bihar, Jharkhand, Odisha and West Bengal & One 3 days Training Programme on Tripping Analysis at ERPC, Kolkata.
- ii. Updating of ER database as per OCC records and collection of data from various new Sub-stations through site visits. Total 27 new Sub-stations were visited during the support period.
- iii. Verification of data on weekly basis for existing database and incorporation of modification in system. All 400 kV level Sub-station data has been verified during the above period.
- iv. Bug fixes and updation of the MiP-PSCT software. MiP-PSCT latest version 10.0.0.2 has been made available for all MiP-PSCT users. Implementation of new Tripping Analysis dashboard completed and given to ERPC/ERLDC.
- v. Provided all types of technical support from team PRDC and also deployed two qualified Protection Engineers at ERPC site on full time basis.
- vi. Performed the grid disturbance simulations as per the requirement of PCC. The zone-3 settings of distance relays of all ISTS lines have been verified for load encroachment by protection expert and the list has been placed in PCC.
- vii. During 74<sup>th</sup> PCC held on 19.12.2018, M/s PRDC gave a detailed presentation on the works carried out during the 1<sup>st</sup> year Support Period.

Therefore, ERPC may approve the payment of ₹ 71,64,951/- for the 1<sup>st</sup> Year Support Period starting from 01.11.2017 to 31.10.2018 which is to be released from PSDF Account of ERPC.

ERPC may approve.

### **Deliberation in the ERPC Meeting**

*ERPC approved payment of ₹ 71,64,951/- for the 1<sup>st</sup> Year Support Period starting from 01.11.2017 to 31.10.2018 to PRDC from PSDF Account of ERPC.*

## **ITEM NO. 8 CAPACITY BUILDING PROGRAMME OF EASTERN REGION FUNDED THROUGH PSDF**

The Sanction by Ministry of Power, GOI for the PSDF grant has been received for the following Capacity Building projects of ERPC:

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

### **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 would be covered in the training programme:

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 training is expected to be started from December, 2018.

39<sup>th</sup> ERPC authorized Member Secretary, ERPC for the followings:

- i) To finalize and enter into an agreement with AIPM, CESC for imparting the above training in 8 batches. The agreement will be administered by the Memorandum of Understanding (MoU) dated 29.03.2017 and the latest terms as given in the Agenda.
- ii) To finalize the course contents in consultation with AIPM and experts in Eastern Region for each training module.
- iii) To co-ordinate with AIPM, ERPC constituents, PSDF Committee etc. for arranging the above training.
- iv) To act as a signatory for opening and operating of bank account to handle the above

ERPC Secretariat has completed the followings:

- i) A separate bank account has been opened for receiving the fund from PSDF and same has been registered in PFMS.
- ii) Requisition for 1<sup>st</sup> installment of fund i.e. 10% of the sanctioned amount has been submitted to NLDC for release of fund from PSDF.
- iii) Agreement with AIPM, CESC is in the final stage of completion and is expected to be completed shortly.

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

This capacity building programme will contribute towards capacity building and assist the development of a commercially viable and vibrant power market in India. It will also give an 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.

### **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 Sectt, CEA and Ministry of Power.
- Training Modules to cover various aspects of Power market operations, impact of renewable 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 issue was deliberated in detail during 39<sup>th</sup> ERPC meeting and the constituent-wise participants from ER utilities had been concurred which is placed at **Annexure-8**. Further, 39<sup>th</sup> ERPC authorized Member Secretary for the followings:

- i) To finalize and enter into an agreement with PTC India Ltd. for imparting the above training in 4 batches.
- ii) To finalize the course contents in consultation with PTC and experts in Eastern Region for each training module.
- iii) To co-ordinate with PTC, ERPC constituents, PSDF Committee etc. for arranging the above training.
- iv) To act as a Signatory for opening and operating of bank account to handle the above fund.

*Subsequently, ERPC Secretariat has completed the followings:*

- i) *Finalized and entered into an agreement with PTC India Ltd. for imparting the above training in 4 batches.*
- ii) *A separate bank account has been opened for receiving the fund from PSDF and same has been registered in PFMS.*
- iii) *Requisition for 1<sup>st</sup> & 2<sup>nd</sup> instalment of fund i.e. 30% of the awarded amount has been submitted to NLDC for release of fund from PSDF.*

ERPC may kindly note.

### **Deliberation in the ERPC Meeting**

*Member Secretary, ERPC apprised the members regarding the actions taken by ERPC Secretariat for release of fund from PSDF. He informed that, on receipt of fund, notice for nomination for the training program shall be issued.*

### **ITEM NO. 9 DEPUTATION OF ENGINEERS FROM THE CONSTITUENTS**

ERPC Secretariat is having acute shortage of engineers. Many of the sanctioned posts are lying vacant. Since there is a general shortage of engineers at CEA, so there is little likelihood that the vacant posts would be filled in imminent future.

Therefore, it is proposed that the Eastern Region Constituents may depute 1/ 2 Middle Level Engineers to ERPC Secretariat on informal basis for a period of 2 years. This will be mutually beneficial. It will ensure ERPC Secretariat to smoothly complete the time bound works. At the same time, it will give a good exposure to the deputed engineers regarding the operational, commercial, protection and other planning issues of Regional Grid.

Members may please discuss.

## **Deliberation in the ERPC Meeting**

*ERPC suggested that letters might be issued by Member Secretary, ERPC to the constituents in ER deployment of officers at ERPC Secretariat on informal fixed tenure basis. Simultaneously, the issue of filling up the different vacant post be taken up with CEA by ERPC Secretariat.*

### **ITEM NO. 10 R&M OF ERPC OFFICE BUILDING & STAFF QUARTERS BUILDING AND OTHER WORKS AS ENTRUSTED TO CPWD**

#### **A. ERPC Office Building**

CPWD had undertaken the R&M work of ERPC Office Building at an estimated cost of Rs. 7,39,61,000/- (Rupees Seven Crore thirty nine lakh and sixty one thousand only). Till date, an amount of Rs. 2, 80, 57,000/- (Rupees Two Crore eighty lakh and fifty seven thousand only) has been released to CPWD.

Due to slow pace of work by the contractor, CPWD has rescinded the order and is in the process of floating the new tender for the balance works.

Recently CPWD authority has requested ERPC to release Rs. 1.50 crore for settlement of the bills etc. of the rescinded contractor for the civil works already done for office building and furniture supplied

ERPC may authorise Member Secretary, ERPC to release an amount of Rs. 1,50,00,000/- (Rupees One Crore fifty lakh only) to CPWD.

## **Deliberation in the ERPC Meeting**

*ERPC authorised Member Secretary, ERPC to release an amount of Rs. 1,50,00,000/- (Rupees One Crore fifty lakh only) to CPWD.*

#### **B. Staff Quarter Building**

CPWD had undertaken the R&M work of ERPC Staff Quarters based on the approved estimate of Rs. 3,15,99,000/- (Rupees Three Crore fifteen lakh and ninety nine thousand only) out of this an amount of Rs. 2,71,66,207/- (Rupees Two Crore seventy one lakh sixty six thousand two hundred and seven only) has been released till date. Renovation of Staff Quarter Building is almost complete. Handing over process under way. Final bill from CPWD is yet to be received.

ERPC may authorise Member Secretary, ERPC to settle the final bill to be submitted by CPWD.

## **Deliberation in the ERPC Meeting**

*ERPC authorised Member Secretary, ERPC to settle the final bill to be submitted by CPWD towards R&M works of ERPC Staff Quarters.*

### **C. Additional Work**

- I) On request from ERPC Secretariat, CPWD submitted an estimate of Rs. 12,60,000/- (Rupees Twelve Lakh sixty thousand only) for the work of “Replacement of existing defective LT Panels with new one” at the ERPC Staff Quarter. The estimate was approved by the Secretariat on 06.07.2018 and CPWD has started the work.
- II) On request from ERPC Secretariat, CPWD submitted an estimate of Rs. 36,50,050/- (Rupees Thirty six Lakh fifty thousand and fifty only) for construction of two gates at the entry of the ERPC premises. The estimate was approved by the Secretariat on 14.12.2018 and CPWD has started the work with a target to complete the same within 5 months time.

ERPC may authorise Member Secretary, ERPC to make payment to CPWD for the above works in stages as per the Bills raised by CPWD.

## **Deliberation in the ERPC Meeting**

*ERPC authorised Member Secretary, ERPC to make payment to CPWD for the above works in stages as per the Bills raised by CPWD.*

### **D. Constitution of Committee for settlement of the Final Bills of CPWD**

In accordance with the decision taken in the 18<sup>th</sup> ERPC meeting held on 1<sup>st</sup> July’2011 and subsequently in the 22<sup>nd</sup> ERPC meeting held on 25.08.2012, Member Secretary I/C, ERPC had constituted a Sub-Committee on 28.08.2012 to supervise renovation works of ERPC Office and its Staff Quarter.

However, with the passage of time, the Committee has become defunct as all the nominated members either retired or transferred. Further, CPWD, being a govt. of India Department, strictly follows the approved schedule while making the estimate. Also it has its own procedure for monitoring the progress of the works. Therefore, there is no necessity of the Committee to supervise the CPWD work and approve payment at each stage. Member Secretary, ERPC may make the payment to CPWD at different stages based on the requisition of CPWD.

It is requested to constitute a Committee who before final settlement of the CPWD Bills shall thoroughly scrutinise the bills vis-à-vis the works done. The following composition of the Committee is suggested:

- 1) Superintending Engineer, ERPC, Kolkata as Chairman.
- 2) One representative from Powergrid.
- 3) One representative from DVC.



ERPC may approve the followings:

- i) *Authorising Member Secretary, ERPC to make payment to CPWD at different stages based on the requisition of CPWD.*
- ii) *Authorising Member Secretary, ERPC to constitute a Committee for final settlement of the CPWD Bills after scrutinising the Final Bills submitted by CPWD.*

### **Deliberation in the ERPC Meeting**

*ERPC authorised Member Secretary, ERPC to i) make payment to CPWD at different stages based on requisition of CPWD ii) to constitute a Committee for final settlement of CPWD Bills after scrutinising the Final Bills submitted by CPWD.*

### **ITEM NO. 11 LIST OF TASKS PERFORMED BY ERPC SECRETARIAT DURING THE PERIOD FROM NOVEMBER'2018 TO FEBRUARY'2019**

List of the works performed by ERPC Secretariat during the period from November, 2018 to February, 2019 is given in **Annexure 11**.

Members may please note.

### **Deliberation in the ERPC Meeting**

*Members noted.*

### **ITEM NO. 12: OUTSTANDING CONTRIBUTION OF PARTICIPATION FEE**

In the 33<sup>rd</sup> ERPC meeting held on 25<sup>th</sup> 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)
- ii) Gati Infrastructure Private Ltd. (GIPL): Rs.32 lakh (for 2017-18 & 2018-19)

Several letters were issued from ERPC Secretariat to the above organisations requesting payments but there has been no response so far.

Members may decide next course of action.

### **Deliberation in the ERPC Meeting**

*It was decided that ERPC Secretariat shall write letters to the concerned constituents for liquidation of outstanding dues.*

### **ITEM NO.13: AUDIT OF ERPC ESTABLISHMENT FUND & ERPC FUND FOR THE YEAR 2017-18**

As per the regulations on ERPC Establishment Fund and ERPC Fund the accounts of the funds for the year 2017-18 were audited by two officers, one from JBVNL and the other from GRIDCO. The audit reports were circulated to all members of ERPC vide letter no.ERPC/Committee/F.03-04/7758-91 dated 15.01.2019. The following points of the Audit Report need consideration of ERPC :

- i) Budget may be prepared and approved by the Competent Authority at the beginning to have comparison of the same with actual expenditure and actual income.
- ii) The balance remaining idle in current account should be kept in sweep account, so that it can generate additional fund for ERPC.
- iii) The accounts may be audited by Chartered Accountants yearly to avoid future complicity from different statutory authority.
- iv) Income Tax Return needs to be filed before Income Tax Authorities as the provisions contained in the Income Tax Act,1961.
- v) Complete set of accounts containing Income and Expenditure account and Balance Sheet as on date should be maintained on the basis of principles generally accepted in India.

Members may discuss and decide.

### **Deliberation in the ERPC Meeting**

*It was decided that Member Secretary, ERPC shall obtain the opinion from the professional Chartered Accountant for deciding the further course of action in this regard.*

### **ITEM NO.14: ERPC ESTABLISHMENT FUND FOR THE YEAR 2019-20**

For the year 2018-19 contribution of Rs.15 Lakh per member was approved by ERPC. It is proposed to keep the contribution unchanged for the year 2019-20 i.e. Rs 15 Lakh per member. The fund is utilised for reimbursement of ERPC Secretariat expenditures to the Govt. of India and any other expenditures as per the approval of ERPC.

Members may approve contribution of Rs. 15 Lakh per member for the year 2019-20.

### **Deliberation in the ERPC Meeting**

*Members approved contribution of Rs. 15 Lakh per member for the year 2019-20.*

#### **ITEM NO.15: ERPC FUND FOR THE YEAR 2019-20**

For the year 2018-19, contribution of Rs.1 Lakh per member was approved by ERPC. It is proposed to enhance the contribution to Rs.1.5 lakh for the year 2019-20 in view of the significant increase in the number of the meetings.

Members may approve contribution of Rs. 1.5 Lakh per member for the year 2019-20.

### **Deliberation in the ERPC Meeting**

*ERPC decided to continue with the contribution of Rs. 1 lakh per member.*

#### **ITEM NO.16: MEMBERSHIP OF ERPC ON ANNUAL BASIS FOR THE YEAR 2019-20**

**16.1 Membership of Private Distribution Company:** As per GoI Resolution on ERPC one distribution company by alphabetical rotation out of the private distribution companies functioning in the region is eligible to become new member on yearly basis. The private distribution companies functioning in the region are IPCL in West Bengal, NESCO, SOUTHCO & WESCO in Odisha and JUSCO in Jharkhand. The names of the private distribution companies in alphabetical order are IPCL (formerly DPSC), JUSCO, NESCO, SOUTHCO & WESCO. In the past none of the private distribution companies showed interest to become member of ERPC and agree to contribute in ERPC Funds at par with other members. In view of the non-response, in the 35<sup>th</sup> ERPC meeting held on 25.02.2017 it was decided that all the Discoms would be approached for membership of ERPC vis-a-vis payment to ERPC Funds. Discom willing to become member will be nominated by alphabetical order on yearly basis. **During the year 2018-19, IPCL was the member of ERPC.**

Accordingly, ERPC may authorise Member Secretary to write to the Discoms for membership for the year 2019-20.

### **Deliberation in the ERPC Meeting**

*ERPC authorised Member Secretary to write to the Discoms for membership for the year 2019-20.*

**16.2 Membership of Private Generating Company (I.C.1000 MW & less):** As per GoI Resolution on ERPC one generating company having installed capacity 1000 MW & less out of the GENCOs functioning in the region (other than central & state generating companies and IPPs having installed capacity more than 1000 MW) is eligible by alphabetical rotation to become member on yearly basis.

In the above category the following IPPs are operating in the region:

- i) Dans Energy Private Limited (Jorthang Loop HEP, 2X48 MW, Tashiding HEP, 2x48.5 MW)
- ii) Gati Infrastructure Private Limited (Chuzachen HEP, 2X55MW)
- iii) Haldia Energy Limited ( 2x300 MW)
- iv) Ind-Bharath Energy (Utkal) Limited (2X350MW)
- v) India Power Company Limited (3x150 MW)
- vi) Sneha Kinetic Power Projects Private Limited (Dikchu HEP, 3x32 MW)
- vii) Tata Power Haldia (2X45 MW & 1x30 MW)
- viii) Vedanta Limited (1X600 MW)

In the 35<sup>th</sup> ERPC meeting held on 25.02.2017 it was decided that the concerned IPPs (except Gati Infra) would be approached for membership of ERPC vis-a-vis payment to ERPC Funds. IPPs willing to become member will be nominated by alphabetical order on yearly basis. **During the year 2018-19 Haldia Energy Limited was the member of ERPC.**

Accordingly, ERPC may authorise Member Secretary to write to the IPPs for membership for the year 2019-20.

### **Deliberation in the ERPC Meeting**

*ERPC authorised Member Secretary to write to the IPPs for membership for the year 2019-20.*

**16.3 Membership of Electricity Trader:** As per GoI Resolution on ERPC one electricity trader is eligible to become member of ERPC representing electricity traders in the region on yearly basis. As per existing practice, CEA recommends the name of the trader. Recommendation from CEA is awaited. On receipt of the recommendation from CEA the nominated trader will be asked to apply for membership together with its contributions to ERPC Funds.

Members may approve the above proposal.

### **Deliberation in the ERPC Meeting**

*Members approved.*

#### **ITEM NO.17: NOMINATION OF CHAIRPERSON, ERPC FOR THE YEAR 2019-20**

The incumbent Chairperson, ERPC i.e. Chairman-cum-Managing Director, GRIDCO & OPTCL, will complete his term on 31<sup>st</sup> March 2019.

*As per GoI Resolution “Chairperson of ERPC would represent the States of the region by rotation in alphabetical order. Members of ERPC from the particular State would nominate the Chairperson of ERPC from amongst themselves. Term of Chairperson would be for a period of one year.”*

The names of the States in alphabetical order are Bihar, Jharkhand, Odisha, Sikkim & West Bengal. Now it is the turn of Sikkim.

Principal Chief Engineer-cum-Secretary, Energy & Power Department, Govt. of Sikkim is the only member from Sikkim. Presently the post is held by Shri K.B. Kunwar.

Therefore, Principal Chief Engineer-cum-Secretary, Energy & Power Department, Govt. of Sikkim may be nominated as Chairperson, ERPC for the year 2019-20.

### **Deliberation in the ERPC Meeting**

*It was decided that Principal Chief Engineer-cum-Secretary, Energy & Power Department, Govt. of Sikkim shall be the Chairperson, ERPC for 2019-20. Presently, the post is being held by Shri K.B. Kunwar.*

## **ITEM NO.18: NOMINATION OF CHAIRPERSON, TCC FOR THE YEAR 2019-20**

The incumbent Chairperson, TCC i.e. Director (Commercial), GRIDCO, will complete his term on 31<sup>st</sup> March 2019.

As per TCC regulations, Chairperson, ERPC shall nominate the Chairperson, TCC from the TCC members from the same State for a period of one year. Principal Chief Engineer-II, Energy & Power Department, Govt. of Sikkim is the only TCC member from Sikkim. Presently the post is held by Shri P.T. Bhutia.

Accordingly, the new Chairperson, ERPC, nominated for the year 2019-20 as above, may nominate the Chairperson, TCC for the year 2019-20.

### **Deliberation in the ERPC Meeting**

*It was also decided that Principal Chief Engineer-II, Energy & Power Department, Govt. of Sikkim shall be the TCC Chairperson for 2019-20. Presently the post is presently held by Shri P.T. Bhutia.*

## **ITEM NO.19: Finalisation of dates and venue for the next ERPC & TCC meetings**

The roster for hosting of ERPC meetings is given below :

<b>Sl. No.</b>	<b>Host Organisation</b>
1.	<b>WEST BENGAL</b> - hosted 26 <sup>th</sup> ERPC Mtg. on 18.01.2014
2.	<b>DVC</b> - hosted 38 <sup>th</sup> ERPC Mtg. on 30.06.2018
3.	<b>NHPC</b> - hosted 27 <sup>th</sup> ERPC Mtg. on 31.05.2014
4.	<b>POWERGRID</b> - hosted 37 <sup>th</sup> ERPC Mtg. on 17.06.2018
5.	<b>SIKKIM</b> - hosted 29 <sup>th</sup> ERPC Mtg. on 14.02.2015
6.	<b>PTC</b> - hosted 28 <sup>th</sup> ERPC Mtg. on 13.09.2014
7.	<b>ODISHA</b> - hosted 31 <sup>st</sup> ERPC Mtg. on 14.11.2015
8.	<b>JHARKHAND</b> - hosted 32 <sup>nd</sup> ERPC Mtg. on 20.02.2016

9.	BIHAR - hosted 33 <sup>rd</sup> ERPC Mtg. on 25.06.2016
10.	NTPC - hosted 30 <sup>th</sup> ERPC Mtg. on 20.06.2015
11.	CESC - hosted 34 <sup>th</sup> ERPC Mtg. on 19.11.2016
12.	APNRL - hosted 23 <sup>rd</sup> ERPC Mtg. on 22.12.2012
13.	MPL - hosted 35 <sup>th</sup> ERPC Mtg. jointly on 25.02.2017
14.	GMRKEL – hosted 36 <sup>th</sup> ERPC Mtg.
15.	NVVN - hosted 39 <sup>th</sup> ERPC Mtg. On 17.11.2018
16.	TPTCL - hosted 35 <sup>th</sup> ERPC Mtg. jointly on 25.02.2017
17.	JITPL - yet to host ERPC Mtg.
18.	Teesta Urja Ltd. - yet to host ERPC Mtg.

In the last (39<sup>th</sup>) ERPC meeting held on 17.11.2018 it was decided to hold 41<sup>st</sup> TCC and ERPC meeting in the month of June/July 2019 under the aegis of West Bengal and the 42<sup>nd</sup> TCC & ERPC meetings in the month of November/December 2019 under the aegis of PTC India Limited.

Accordingly, it would be the turn of West Bengal (WBSEDCL, WBSETCL, WBPDCCL & DPL) to host the 41<sup>st</sup> TCC and ERPC meetings. Like previous occasion WBSEDCL may agree to be the nodal organisation for hosting the meetings.

Members may discuss and decide on the dates for the next (41<sup>st</sup>) TCC & ERPC meetings. The venue would be finalised by WBSEDCL in consultation with ERPC Secretariat.

### **Deliberation in the ERPC Meeting**

*The next (41<sup>st</sup>) TCC and ERPC meetings would be hosted by West Bengal. Venue and dates shall be finalised in consultation with WBSEDCL.*

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Minutes  
of  
**40<sup>th</sup> TCC Meeting**  
of  
**EASTERN REGIONAL POWER COMMITTEE**

**Date: 15<sup>th</sup> March, 2019**

**Venue: Jodhpur**



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# **EASTERN REGIONAL POWER COMMITTEE, KOLKATA**

## **MINUTES OF 40<sup>TH</sup> TCC MEETING**

**Date: 15<sup>th</sup> March, 2019 (Friday)**

**Place: Jodhpur**

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

<b>ITEM NO.A1:</b>	<b>CONFIRMATION OF THE MINUTES OF 39<sup>TH</sup> TCC MEETING</b>
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The minutes of the 39<sup>th</sup> TCC meeting held on 16<sup>th</sup> November, 2018 at Jaipur were circulated vide letter no. ERPC/TCC&Committee/14/2018/6731-6800 dated 18<sup>th</sup> December, 2018.

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

Members may confirm the minutes of 39<sup>th</sup> TCC meeting.

### **Deliberation in the TCC Meeting**

*Members confirmed the minutes of the 39<sup>th</sup> TCC Meeting without any amendment.*

## **PART B: ITEMS FOR DISCUSSION**

<b>ITEM NO. B1:</b>	<b>Implementation of DSM (4th amendment) Regulations, 2018 – Concerns raised by various utilities of Eastern Region</b>
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**NHPC:** As per CERC DSM Regulation, (4<sup>th</sup> Amendment issued by CERC vide order no. L-1/132/2013-CERC dated 20/11/2018) in the event of sustained deviation from schedule in one direction by any regional entity, such Regional entity shall have to change sign of their deviation from schedule at least once after every 6 time blocks. The violation under this clause attracts additional charges of 20% on the daily DSM payable/receivable.

For Rangit Power Station (3X20MW), NHPC vide letter no. NH/O&M/GMC/223 dated 24.01.2019 (Copy enclosed at Annexure – B1a), have intimated that when machines are not operational (Off peak hour in lean season) and schedules is zero the actual transmission figures are non-zero resulting in deviation from schedule. In this scenario, when there is no injection of power from Rangit, the actual transmission figures are beyond control of Power Station, therefore it is not possible to do the sign reversal of deviation from schedule as stipulated in the above said regulations resulting in additional deviation charges to NHPC.

Similar case also existed in Northern Region, which was taken up with NRPC in the 155th OCC Meeting of NRPC held on 17th January 2019, wherein it was decided that "where injection schedule given to the generator is zero and the power from the grid is being drawn by the generator for their auxiliary consumption, in such scenario, no "additional Charge" for sustained deviation shall be imposed".

Accordingly, the Deviation Settlement Account for the week 31st December 2018 to 06th January 2019 has also been issued by NRPC on above assumptions.

In view of above, NHPC requested that when there is no injection from Rangit Power House or in such cases, the additional charge as Penalty on sign change may not be considered.

**TUL:** The generation schedule of Teesta-III HEP is 'zero', only grid power is flowing through Teesta-III HEP bus-bar. During such period additional deviation charges have been imposed on Teesta-III HEP, due to no sign change. We have been penalized to the tune of ₹1.75 lacs as DSM charges for the period of 01-Jan-2019 to 20-Jan-2019 by ERPC.

Since our generation schedule is zero, we should not be penalized due to flow of grid power through Teesta-III bus bar. (Copy of email enclosed at Annexure – B1b)

**CHUZACHEN:** When the generation schedule for Chuzachen HEP is zero, Chuzachen HEP acts as a LILO for the 132 KV Rangpo-Chuzachen-Gangtok Circuit. The direction of power flow on this circuit is dependent on the grid conditions due to which Chuzachen HEP should be exempted from the sign change rule as we have no role to play in the import or export of power under this condition on this circuit.

Chuzachen is a run-of -river plant with restricted pondage. During the transitional months of May to June; there are sudden increases of hydrology in the Himalayan region and a 1% cap for additional generation is not enough to utilize the water potential available then as reservoir storage will be exceeded. Hence for transitional months; additional generation cap should be sufficiently increased as loss of water is a loss of revenue for the company as well as the nation.

**DANS ENERGY:** DANS Energy vide letter no. DEPL/JLHEP/O&M/18-19/ERLDC/001, dated 12.02.2019 informed that Additional Deviation Charges have been imposed on DEPL in respect of Jorethang Loop HEP for the period from 01.01.2019 to 27.01.2019 due to Sign Change violation penalty. This is on account of negative power being captured by Special Energy Meters at New Melli Grid Pooling Station, which has been installed by PGCIL during zero schedule power by Jorethang Loop HEP and without any import/start up power from grid to DEPL during the plant shut down period.

**KBUNL:** KBUNL vide letter no. KBUNL/COMML/1584 dated 14.02.2019 (Copy enclosed at Annexure – B1c) has requested that Additional Deviation Charges for over-injection by a Central Sector Generating Station, whose tariff is determined by Hon'ble CERC, when grid frequency is 50.05Hz & above, the rate of DSM applicable should be ACP or ECR (lesser of the two).

**HVDC PUSAULI & ALIPURDUAR:** Powergrid has submitted that quantum of auxiliary power consumption at any point of time through HVDC depends on the load flow through the system which is dependent on demand and supply situation of the grid and is beyond their control. Hence, Powergrid has requested that deviation from schedule on account of auxiliary power drawn for their HVDC stations should be exempted from sign change violation penalty.

*In 39<sup>th</sup> CCM, Members unanimously decided the followings:*

*i) Power drawn by a generator against “ZERO” schedule shall exempted from penalty due to sign change violation.*

ii) Power injected by a generator against “ZERO” schedule shall NOT be exempted from penalty due to sign change violation.

iii) If the drawal schedule of a utility is equal to or less than 3 MW, no penalty shall be imposed against the sign change violation.

iv) Regarding the issue raised by KBUNL, it was decided that for any over-injection by Generators at grid frequency 50.05Hz or above, ADC shall be applicable at ACP.

v) The above decisions shall be placed in the TCC and ERPC meeting for concurrence.

vi) On receipt of the concurrence, the same shall be implemented retrospectively w.e.f. 01.01.2019.

vii) However, the decision of CERC, if any, on this issue shall prevail.

In 154<sup>th</sup> OCC, it was observed that the % of time of frequency remaining within the IEGC had been decreased to 70% in January, 19 w.r.t. 78% in January, 18. Similarly % of time of grid frequency greater than 50.05 Hz had been increased to 19% in January, 19 w.r.t. 11% in January, 18. This trend was contrary to the expectation as amended DSM Regulation has come into force from 01.01.2019.

ER constituents opined that the frequency shown by the ERLDC is 15 min average frequency which is deviating from IEGC band whereas the instantaneous frequency is much fluctuating after implementation of new DSM regulation.

Member Secretary, ERPC highlighted the issue of imposition of penalty based on sign change on the generator against “ZERO” schedule. He also highlighted the issue of imposition of sign change penalty for marginal drawal schedule. He informed the OCC members regarding the decision taken in the last commercial Sub-Committee meeting to resolve the issue.

ERLDC added that BSPTCL and Odisha are perfectly maintaining their drawal as per the schedule whereas Jharkhand and Sikkim are paying huge amount of DSM charges.

OCC advised Jharkhand and Sikkim to maintain the drawal as per the schedule.

TCC may discuss.

### **Deliberation in the TCC Meeting**

Member Secretary explained the salient features of the DSM (4<sup>th</sup> Amendment) regulation including the experience of implementation of same by Eastern region. He informed that a number of letters have been received from NHPC, TUL, Chuzachen, DANS Energy, KBUNL, Powergrid and NVVN etc. highlighting the grey areas in the regulation which are affecting them.

After detailed deliberation, TCC interpreted the DSM(4<sup>th</sup> Amendment) Regulation as follows:

- a) Power drawn by a generator against “ZERO” schedule shall be exempted from penalty due to sign change violation.

- b) Power injected by a generator against “ZERO” schedule shall NOT be exempted from penalty due to sign change violation.*
- c) If the deviation against schedule touches “ZERO” value in any time block, that should be taken as sign change.*
- d) These shall be implemented retrospectively w.e.f. 01.01.2019.*
- e) The decision of CERC, if any, subsequently on this issue shall prevail.*

*Further TCC recommended the followings:*

- i) For the export of power to Bangladesh through HVDC, NVVN was advised to keep the set point of HVDC for the time block as per the schedule which will ensure zero deviation from the schedule.*
- ii) Powergrid has already filed a petition in CERC regarding exemption from sign change violation for the power drawn by the HVDC stations. If CERC issues any order in this regard, the same shall be complied with.*
- iii) The constituents shall write to ERPC secretariat within ten days highlighting the difficulties being faced by them in implementing the DSM 4<sup>th</sup> Amendment including the grey areas in the regulation that needs to be addressed.*
- iv) ERPC Secretariat after compiling the views of the constituents of the ER shall take up the matter with CERC for addressing the issues.*
- v) The issue of mismatch of SCADA data vis-à-vis SEM data as raised by WBSEDCL and WBPDCCL shall be discussed in SCADA meeting.*

*TCC referred the issue to ERPC for further guidance.*

<b>ITEM NO. B2:</b>	<b>Implementation of Fast Response Ancillary Service (FRAS)</b>
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CERC in its Suo-Motu order dated 16.07.2018 in petition No.07/SM/2018/Suo-Motu directed the implementation of Fast Response Ancillary Service (FRAS) on pilot basis w.e.f 26.11.2018. ERPC Secretariat has accordingly prepared and issued FRAS accounts along with RRAS accounts since implementation. As per CERC order, total energy dispatched during a day for hydro stations under FRAS shall be made zero and hence, no energy charges shall be payable to the hydro stations. Incentive shall be paid on mileage basis from DSM pool at the rate of 10 paisa/KWH for both “up” & “down” Energy to FRAS provider. It has been observed that in some days the net energy dispatch under FRAS ( “up” & “down” ) is not zero for hydro stations like Teesta V & Rangit. This may result in significant financial implication for FRAS providers in the event of large quantum of dispatch under FRAS.

*In 39<sup>th</sup> CCM, ERPC Secretariat gave a detailed presentation on the implementation of FRAS in the Eastern Region. The implication of unbalanced FRAS schedule was also highlighted during the presentation.*

*NHPC gave a presentation highlighting operational challenges faced by operators of NHPC plants participating in FRAS.*

*It was decided to bring this issue before upcoming TCC meeting.*

TCC may guide.

### **Deliberation in the TCC Meeting**

*Member Secretary ERPC informed that FRAS as a pilot project has been implemented in Eastern Region w.e.f. 26.11.2018. It was found that the algebraic sum of energy despatched over a day under FRAS for some days for Teesta-V and Rangit have not been zero. He elaborated the commercial implications of this imbalance on the generator as well as its beneficiaries.*

*After detailed deliberation, TCC authorised Member Secretary ERPC to take up with CERC for addressing the issue while implementing it on full scale.*

<b>ITEM NO. B3:</b>	<b>Security Constrained Economic Dispatch (SCED) of Inter-State Generating Stations Pan-India</b>
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Hon'ble Commission, vide Order in Petition No. 02/SM/2019 (Suo-Motu) dtd. 31st January, 2019, directed for Pilot on Security Constrained Economic Dispatch (SCED) of Inter-State Generating Stations (ISGS) Pan India "<http://cercind.gov.in/2019/orders/02-SM-2019.pdf>"

The Central Commission observed that there is an overarching objective to optimize the scheduling and dispatch of the generation resources and reduce the overall cost of production of electricity without major structural changes in the existing system/framework. Accordingly, the Commission directed for pilot of SCED for the Inter-State Generating Stations, on pilot basis, w.e.f. 01<sup>st</sup> April, 2019.

The SCED optimization model is for all the thermal Inter State Generating Stations (ISGS) that are regional entities and whose tariff is determined or adopted by the Commission for their full capacity without violating grid security and honoring the existing scheduling practices prescribed in the Indian Electricity Grid Code.

A draft procedure circulated by NLDC is attached in **Annexure-B3**.

*In 154<sup>th</sup> OCC and 39<sup>th</sup> CCM, NLDC/ERLDC gave a brief presentation highlighting the objective, the basic principle and the methodologies to be followed in its implementation. It emerged from the discussion that the overall system cost shall be reduced to a great extent.*

*It was suggested by the members that a detailed procedure is needed to be developed by CERC for equitable distribution of fund accumulated in the pool among the beneficiaries and the generators before full-scale implementation of SCED.*

OCC advised NLDC/ERLDC to give a presentation in TCC Meeting.

ERLDC/NLDC may give a presentation.

TCC may discuss.

### **Deliberation in the TCC Meeting**

*Member Secretary, ERPC elaborated the objective, the basic principle and the methodologies to be followed in SCED implementation. TCC appreciated the mechanism and felt that the overall system cost will be reduced to a great extent.*

*TCC observed that neither the generator nor the beneficiaries are getting to be benefitted from the funds accumulated in the pool.*

*TCC opined that a detailed procedure is needed to be developed by CERC for equitable distribution of fund accumulated in the pool among the beneficiaries and the generators before full-scale implementation of SCED.*

<b>ITEM NO. B4:</b>	<b>Implementation of Automatic Generation Control (AGC) in India (at Inter-State level)</b>
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CERC in its order dated 13.10.2015 in Petition No. 11/SM/2015 reiterated the need for mandating Primary Reserves as well as enabling Secondary Reserves, through Automatic Generation Control (AGC) as follows:

*“(a) All generating stations that are regional entities must plan to operationalise AGC along with reliable telemetry and communication by 1st April, 2017. This would entail a one-time expense for the generators to install requisite software and firmware, which could be compensated for. Communication infrastructure must be planned by the CTU and developed in parallel, in a cost-effective manner.*

*(b) On the other hand, National/Regional/State Load Dispatch Centres (NLDC/RLDCs/SLDCs) would need technical upgrades as well as operational procedures to be able to send automated signals to these generators. NLDC /RLDCs and SLDCs should plan to be ready with requisite software and procedures by the same date.*

*(c) The Central Commission advises the State Commissions to issue orders for intra-state generators in line with this timeline as AGC is essential for reliable operation of India’s large inter-connected grid.”*

The issue was discussed in 8<sup>th</sup> NPC Meeting held on 30th November 2018, it was decided that each RPC would submit the status of implementation of AGC to NPC.

*In 154<sup>th</sup> OCC, It was informed that ISGS generators at Barh STPS and Teesta V\* HEP are in the process of implementation of the AGC as a pilot project. However, the exact status of implementation could not be ascertained in the meeting.*

*It was informed by Member Secretary, ERPC that, during the deliberation in the 8<sup>th</sup> NPC meeting on 30.11.2019, it emerged that states in the other regions had already taken initiative for implementation of AGC. ERPC was advised to sensitize this issue in the ERPC forum.*



*OCC advised Odisha, West Bengal and DVC to identify one generator in their system for implementation of AGC as a pilot project and place the detailed implementation plan in coming TCC Meeting.*

NTPC and NHPC may update.

Odisha, West Bengal and DVC may place the details.

TCC may decide.

*\* Not at Teesta-V as inadvertently mentioned in the agenda.*

### **Deliberation in the TCC Meeting**

*NTPC informed that AGC at Barh STPS will be implemented by May, 2019.*

*SLDC Odisha informed that they have written a letter in this regard to OPGC also pointed that regulatory changes need to be framed by SERC before implementation of AGC in the state.*

*OPGC suggested to implement the AGC in new units to be commissioned shortly.*

*DVC confirmed that unit#8 of Mejia TPS has been identified for AGC implementation as a pilot project.*

*WBPDCCL informed that they will submit the details in OCC meeting.*

*The followings are decided in the TCC Meeting*

- 1. Status of implementation of AGC shall be regularly monitored in OCC meetings.*
- 2. An workshop shall be organised in ERPC wherein NLDC and NTPC will be invited to interact with the ER constituents regarding the experience they have gained in implementing the AGC in other regions.*

<b>ITEM NO. B5:</b>	<b>Repeated Uncoordinated Trippings at 220 / 132 kV Lalmatia S/stn vis – a – vis Handing over of O&amp;M Services and Assets of 220 kV Farakka – Lalmatia (FLTS) of ECL from NTPC to JUSNL</b>
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In view of uncoordinated trippings and frequent interruption of Power Supply at 220 / 132 kV Lalmatia S/stn, there is immediate need to replace old, obsolete equipment which are outlived their utility (still in service since 1991) . Protection Audit was carried out by ERPC team on 16.08.2018, which recommended considerable investment for replacement of equipment to dovetail with modern Protection System. Moreover, NTPC is insisting not to continue with O&M Services of FLTS and agreeable with upgradation of the substation which is now much needed. However, JUSNL informed that the upgradation work of the substation on their part has been awarded to M/s SIEMENS for expediting on priority basis.

ERPC in its 39<sup>th</sup> meeting advised Secretariat to convene a meeting among the concerned utilities to resolve the issues.

Accordingly, ERPC convened a Special meeting on 13.12.2018 (MoM is enclosed at **Annexure –B5a**), wherein JUSNL expressed that they are agreeable to take the maintenance of FLTS as per the present terms and conditions that ECL is having with NTPC and also to take over the assets from ECL to ensure reliable supply of power to ECL coal mines and its consumers. ECL, in principle, agreed to handover the maintenance of FLTS to JUSNL with the same terms and conditions with NTPC provided JUSNL agrees to bear the Transmission Charges of FLTS to the extent of the use including arrears.

It was decided that ECL, JUSNL and NTPC shall bring the decisions of the meeting to their respective higher authorities and shall convey the consent in writing to ERPC Secretariat within 14.02.2019. If necessary, Jharkhand and ECL shall sit together to develop greater clarity in resolving the issues. If both ECL and Jharkhand agree on the above mentioned points in writing, a Committee of experts may be constituted by ERPC for necessary computation.

ECL vide its communication dated 11.02.2019 informed that (letter is enclosed at **Annexure-B5b**) a meeting was held on 28.01.2019 at JUSNL, Ranchi among JUSNL, ECL and NTPC in which ECL agreed to hand over the entire assets of 220 kV FLTS to JUSNL at some mutually agreed cost taking into consideration the depreciation of assets and increased utilisation of Farakka – Lalmatia System (FLTS) by Jharkhand over the years for meeting its distribution loads.

JUSNL vide mail submitted the minutes of the meeting, which is enclosed at **Annexure-B5c**.

JUSNL may elaborate.

### **Deliberation in the TCC Meeting**

*Member Secretary, ERPC traced the genesis of the issue involving 220 kV FLTS. It was constructed almost 28 years ago to facilitate uninterrupted supply of power to the tune of 10-12 MW to the Lalmatia mines of ECL.*

*Jharkhand has also been using the line to meet its own load. Jharkhand has not been paying any transmission charges on account of utilisation of the line, The line is presently being maintained by NTPC. NTPC has been insisting that being a generation company they do not have technical expertise to maintain a transmission line. The issue of handing over of the line to Jharkhand has been going on for quite some time.*

*In the 39<sup>th</sup> ERPC meeting, ERPC Secretariat was advised to convene a meeting among the concerned utilities to resolve the issue. Accordingly, a meeting was convened on 13.12.2018. Specific proposals were discussed in the meeting. It was decided that ECL, JUSNL and NTPC shall sit together to resolve the issue.*

*Accordingly, a meeting was held in Ranchi among JUSNL, ECL and NTPC on 28.01.2019. In the meeting Jharkhand has given two proposals- one concerning handing over the O & M of 220kV FLTS to JUSNL with the same terms and condition as existing with NTPC and another regarding transferring the ownership of the FLTS. Both the proposals of JUSNL was not acceptable to ECL.*

*There were detailed deliberations in the TCC meeting. During deliberation it was pointed out that ECL is not a transmission licensee as such they may not be entitled to collect the*

*transmission charges under any prevailing regulation. Therefore collecting transmission charges may lead to legal challenges.*

*Thereafter ECL proposed to handover the ownership of 220 kV FLTS to JUSNL at zero cost on as is where basis provided necessary investment for upgradation as recommended by protection audit team of ERPC are made by JUSNL and JUSNL should also ensure uninterrupted supply of power to ECL coal mines at Lalmatia.*

*JUSNL representative agreed to look into this proposal and agreed to convey their acceptance after consulting the higher authorities.*

*ECL raised the issue of refund of additional O &M charges by NTPC. ECL was advised to settle the issue bilaterally with NTPC.*

<b>ITEM NO. B6:</b>	<b>Import of Power by Bhutan in 2019</b>
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DGPC Bhutan vide letter no. DGPC/O&MD/23/2018/437 dated 04.02.2019 intimated that 1<sup>st</sup> unit of 720MW Mangdechhu HEP, which was supposed to be commissioned in 2018, is still not commissioned due to unavoidable circumstances. It is expected to be commissioned by end of February 2019 if all the works get executed as per the planned schedule.

Due to this, Bhutan has imported a net energy of 11.291923MU from India in the month of January 2019. This net import of power by Bhutan from India may continue during the months of February & March 2019 as well till the 1<sup>st</sup> unit of MHEP is commissioned.

ERPC Secretariat had convened a meeting on 13.07.2018 to finalize the treatment of import of power by Bhutan during February and March 2018. In the meeting ERPC Secretariat and Director (O&M), DGPC Bhutan gave detailed presentations. It was observed that the entire anomaly has arisen due to non-existence of any suitable tariff between India and Bhutan for import of power by Bhutan. ERPC Secretariat had first adjusted the import of power by Bhutan during Feb-2018 and Mar-2018 from the export of power to India during Apr-2018 and thereafter segregated the balance power into Tala & Chukha components. However, Bhutan has prepared the accounting based on segregation of export of power to India during April 2018 into Tala & Chukha components first and thereafter made the adjustment of import of power during the months of Feb-2018 and Mar-2018.

In the meeting, it was unanimously decided that financial liability arising out of the methodology adopted by ERPC Secretariat for treatment of import of power by Bhutan shall be shared between India and Bhutan on 50:50 basis as a one-time settlement. The same methodology may be adopted for accounting and financial settlement of import of power by Bhutan during 2019 as well.

*In 39<sup>th</sup> Commercial Sub-Committee Meeting, members recommended that, as a special case, the issue of import of power by Bhutan this year should be resolved in line with the methodology adopted in the previous year. This shall be put up to TCC for approval.*

*In 154<sup>th</sup> OCC, Member Secretary, ERPC outlined the issues involved in accounting the power imported by Bhutan during winter this year due to delay in commissioning of Mangdechhu Hydroelectric Project in Bhutan. He also informed that the issue was discussed in details in the*

*Commercial Sub-Committee meeting. The decision of Commercial sub-Committee in this regards was also conveyed in the meeting.*

*In line with the decision taken in the Commercial sub-Committee meeting, OCC also decided to refer this issue to TCC for further guidance.*

TCC may guide.

### **Deliberation in the TCC Meeting**

*Member Secretary, ERPC elaborated the issues involved in accounting of the power imported by Bhutan during this winter due to delay in commissioning of Mangdechhu Hydroelectric Project in Bhutan.*

*Bhutan has informed that even though as a whole Bhutan has imported power from India during winter, but in actuality the import has taken place only through NE Region i.e. through 132 kV Kurichhu system whereas Tala and Chukha power has been exported to India through Binaguri and Birpara. Bhutan has suggested that the power imported by India through Binaguri and Birpara should be treated as Tala and Chukha power and should be segregated as per the existing methodology. The import by Bhutan from NE Region should be adjusted against the segregated Tala power in future.*

*Member Secretary ERPC informed that an elaborate study has been done by ERPC through analysis of meter readings to ascertain any loop flow existed between Kurichu and Tala/Chukha system. It was found out no such loop flow existed. Therefore, he suggested that the proposal of Bhutan may be accepted.*

*TCC agreed to adopt the methodology as suggested by Bhutan.*

*TCC referred to ERPC for concurrence.*

<b>ITEM NO. B7:</b>	<b>Implementation of differential protection for short distance lines in different substations connected to Powergrid ER-II</b>
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The Lines where line differential protection are to be implemented are as follows:

Sl. No.	Substation name	Name of the Line	Line length in km	Line owned by
1	Durgapur	220KV DGP (PG) - DVC Ckt.-I	1	DVC
2		220KV DGP (PG) - DVC Ckt.-II	1	DVC
3		400 kV DGP (PG) - Bidhan Nagar (WBSETCL) Ckt.-I	11	WBSETCL
4		400 kV DGP (PG) - Bidhan Nagar (WBSETCL) Ckt.-II	11	WBSETCL
5	Malda	132KV MLD (PG) - MLD (WBSETCL) Ckt.-I	5.94	WBSETCL
6		132KV MLD (PG) - MLD (WBSETCL) Ckt.-II	5.94	WBSETCL
7	Alipurduar	220KV ALPD (PG)- ALPD (WBSETCL) Ckt-I	6.377	WBSETCL

8		220KV ALPD (PG) - ALPD (WBSETCL) Ckt.-II	6.377	WBSETCL
9	Birpara	132KV BRP (PG) - BRP (WBSETCL) Ckt.-I	0.3	WBSETCL
10		132KV BRP (PG) - BRP (WBSETCL) Ckt.-II	0.3	WBSETCL
11	Siliguri	132KV SLG (PG) - NJP (WBSETCL) Ckt.	10	WBSETCL
12		132KV SLG (PG) - NBU (WBSETCL) Ckt.	10	WBSETCL

In 68<sup>th</sup> PCC meeting, it was opined that differential protection should be implemented for all short lines (<20KM) to overcome relay co-ordination issues with respect to distance and over-current protection.

PCC in principle agreed and opined that differential protection at both the ends could be implemented by one entity to maintain the relay and communication compatibility.

PCC advised Powergrid to implement differential protection at both ends for the above lines.

*In 38<sup>th</sup> TCC Meeting, it was decided that the cost relating to implementation of fiber based differential protection scheme for both ends shall be borne by concerned utilities owning the line.*

Therefore, for retrofitting of the old relays budgetary offer has been collected from M/s GE Ltd. Vide ref. no.-SPT001/PGCIL dated 22.05.2018. A BOQ has been prepared and the total financial implication comes to Rs. 1,30,27,200/- (One crore thirty lacs twenty seven thousands two hundreds only) including GST and other terms & conditions. Powergrid placed the proposal for

- Technical & administrative approval,
- Financial concurrence for Rs. 1,30,27,200/- (inclusive of GST),
- Execution of work through open tender basis

In 75<sup>th</sup> PCC, members agreed to the proposal and referred to Commercial Sub-Committee Meeting for discussion.

*In 39<sup>th</sup> Commercial Sub-Committee Meeting, members recommended for implementation of Differential protection for short distance lines in different substations of Powergrid ER-II at cost of Rs. 1,30,27,200/- (One crore thirty lacs twenty seven thousands two hundred only). This shall be put up to TCC for concurrence.*

TCC may approve.

### **Deliberation in the TCC Meeting**

*West Bengal and DVC agreed to implement the differential protection for serial number 1 to 10.*

*West Bengal requested to review the implementation of differential protection for serial number 11 & 12 in lower forums of ERPC and place a separate proposal if necessary, in next TCC meeting.*

*TCC in principle agreed for the cost implication and advised Powergrid to revise the cost excluding serial number 11 & 12.*

*TCC decided to refer the issue to ERPC for concurrence.*

<b>ITEM NO. B8:</b>	<b>Use of Polymer Insulators in the transmission lines</b>
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*In 30<sup>th</sup> ERPC Meeting, Powergrid representative delivered a brief presentation highlighting the benefits of Polymer insulators vis-à-vis porcelain/anti-fog disc type insulators mainly on account of high number of trippings of transmission lines due to flashover of insulators.*

*ERPC agreed for installation of polymer insulators in new transmission lines and replacement of porcelain insulators with polymer insulators in existing transmission lines.*

CEA vide letter dated 28<sup>th</sup> November 2018 informed that many representations have been received in CEA as well as VIP references from Ministry of Power from various manufacturers and associations highlighting the issue of use indiscriminate use of polymer insulators which are mostly imported from China leading to closure of indigenous porcelain manufacturing industry. To resolve the issue, a meeting was held in CEA on 25.5.2018 with various stakeholders to deliberate on the issue.

PGCIL vide letter no . C/CTU/E/02/TBCB dated 24.10.2018, indicated that on the directions of RPC's, only polymer type insulators are being used in the new transmission lines of PGCIL traversing through states in Northern and eastern Regions. Moreover, PGCIL is replacing the porcelain insulators with polymer insulators in the existing transmission lines of the region. PGCIL has categorically mentioned that the same has been done in accordance with the decision taken in the meetings with Regional Power Committees.

It is to mention that CEA has issued the Regulations and there are specific provisions regarding use of porcelain (disc type/long rod) and polymer insulators . Regulation Clause No. 89(1)(f)(i) of CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations 2010, may be referred in this regard.

It may be clarified whether decision of use of polymer insulation in place of porcelain insulator was taken for some particular lines or locations. Considering the sensitiveness of issue, the same may also be discussed in respective RPC meetings and a balanced approach may be adopted for all future lines.

*In 152<sup>nd</sup> OCC, Powergrid informed that they are following the “Regulation Clause No. 89(1)(f)(i) of CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations 2010”.*

*After detailed deliberation, OCC decided the following:*

- *Powergrid should submit the details of the progress made towards insulator replacement work and quantity of polymer insulators received till date*
- *Powergrid should submit the details of order placed for the polymer insulators, which are scheduled to be delivered in near future*
- *The issue would be placed in TCC/ERPC Meeting for detailed discussion*

- *Powergrid should not place any fresh order for polymer insulators till further decision by TCC/ERPC*

Details received from Powergrid is enclosed at **Annexure-B8**.

*In 154<sup>th</sup> OCC, Powergrid informed that the installed polymer insulators were mostly purchased from Indian Vendors.*

*OCC decided that the details submitted by the Powergrid would be placed in TCC Meeting. Further, a Report would be submitted to CEA based on the deliberation in TCC.*

TCC may decide.

### **Deliberation in the TCC Meeting**

*After detailed deliberation, TCC decided that the onus of selecting the type of insulators is lies with the utilities and shall be governed by cost, reliability, ease of maintenance, environmental conditions and CEA standards, if any on this.*

*Member Secretary, ERPC has been accordingly advised to write CEA conveying the decisions of TCC.*

<b>ITEM NO. B9:</b>	<b>National Energy Accounting</b>
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In 8<sup>th</sup> Meeting of NPC (National Power Committee) held on 30.11.2018 at Guwahati, an agenda note as circulated by NLDC vide letter dated 09.11.2018 (Copy enclosed at **Annexure-B9**) on National Energy Account & National Deviation Pool Account was taken up for discussion. Summary of the proposed methodology is as follows:

1) **Scheduling**: Scheduling inter-regional transactions on a net basis for each region. NLDC shall communicate the net inter-regional schedules to the NPC for accounting.

2) **Metering**: SEM data shall be collected by the RLDCs, processed meter data shall be made available to NPC through NLDC.

3) **Accounting & Settlement**: Based on the scheduling and meter data provided, NPC shall prepare the National Energy Account (NEA) including the National Deviation Account for the inter-regional and trans-national transactions. The NEA will reflect the payables/receivables for each region on a net-basis and this amount shall be payable/receivable to the National Deviation Pool Account which shall be operated by NLDC. The NEA shall also reflect the cross-border or trans-national transactions and the neighbouring countries shall be paying/receiving to/from the National Deviation Pool Account operated by NLDC. Payment to the National DSM Pool shall have the highest priority.

4) **Handling Surplus/Deficit in Regional Pool Accounts and transfer of residual to PSDF**: Once the National DSM Pool becomes operational, all residual/surplus amount in the regional DSM pools shall be transferred to the National DSM Pool Account. The NPC accounts would also facilitate the transfer of funds from the surplus available in the National DSM pool to the deficit regional DSM pool accounts as a single transaction thereby simplifying the process.

Once all liabilities have been met, any residual in National DSM Pool shall be transferred periodically to the PSDF in accordance with the extant CERC Regulations.

In 8<sup>th</sup> NPC Meeting, it was decided that the proposal on NEA & National Deviation Pool Account may be discussed in all the RPCs and the observations of RPCs may be furnished to NPC Secretariat.

*In 39<sup>th</sup> CCM, it was decided that the constituent would go through the agenda item in detail & give their comments for deliberation in the upcoming TCC meeting.*

TCC may discuss.

### **Deliberation in the TCC Meeting**

*During deliberation, it was clarified by NLDC that the existing responsibilities of the RPCs for energy accounting including inter regional and trans-national transactions shall remain intact. Only the national DSM pool account shall take care of the receipt and disbursement of inter-regional and trans-national transactions. This will avoid loop flow of money.*

*TCC observed that before operationalization of the DSM pool account, necessary changes in the regulation are required.*

<b>ITEM NO. B10:</b>	<b>Certification of non-ISTS lines of OPTCL system carrying ISTS power</b>
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OPTCL vide letter no. RT&C-NON-ISTS/2017-497 dated 02.02.2019, has requested ERPC Secretariat to expedite the process of certification of their 9 nos. of 220KV & 132KV transmission lines as non-ISTS lines carrying ISTS power as follows:

1. 220kV Kuchei-Balasore D/C line
2. 220kV Atri-Pandiabil D/C line
3. 220kV Samagara-Pandiabil D/C line
4. 220kV New Bolangir-Bolangir(PG) S/c line
5. 220kV Bargarh- New Bolangir S/C line
6. 132kV Kuchei-Bangiriposhi S/C line
7. 132kV Kuchei-Baripada S/C line
8. 132kV Kuchei-Jaleswar S/C line
9. 132kV Kuchei-Bhograi S/C line

This is necessary to enable OPTCL to file before CERC for determination of transmission charges.

Accordingly, ERPC Secretariat issued a letter to ERLDC (vide letter no ERPC/COM-I/non-ISTS/2019/8986-87 dated 11.02.2019 as enclosed at Annexure – B10) requesting to carry out necessary system studies and forward the same to ERPC.

*In 39<sup>th</sup> CCM, ERLDC presented quarter-wise study result for the year 2018-19. It was decided that another quarter-wise study for the year 2017-18 shall also be carried out by ERLDC. Both the results shall be put up to TCC for deliberation.*

ERLDC may give a presentation.



TCC may discuss.

## **Deliberation in the TCC Meeting**

*ERLDC opined that study for identification of non-ISTS lines carrying ISTS power shall be done for current and future years only. Studying of past period has no meaning.*

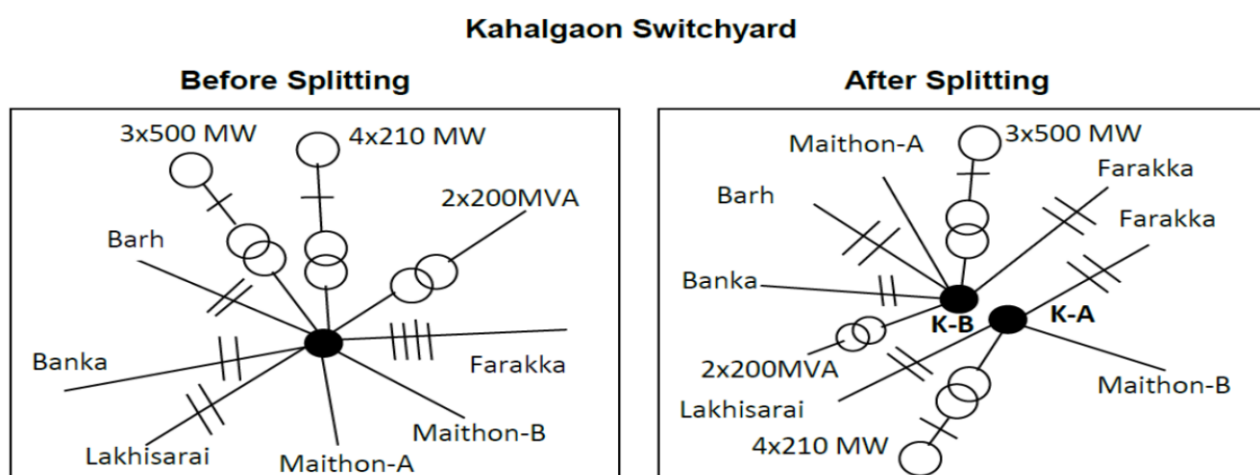
*Thereafter ERLDC presented the study results for nine OPTCL non-ISTS lines for the period 2018-19. It became evident that the lines were almost exclusively catering the needs of Odisha system.*

*After detailed deliberation, the followings were decided for certification of non ISTS lines carrying ISTS power*

- 1. The requester utility before making any request for certification shall conduct a preliminary study by themselves to substantiate that there is a possibility of non ISTS lines carrying substantial ISTS power.*
- 2. On receipt of the request and on scrutiny of the preliminary result, it shall be decided by ERPC and ERLDC whether the claim would be further analysed through elaborate system study.*
- 3. If it is decided by ERPC and ERLDC that a system study using WebNet software will be conducted for capturing one full seasonal variation, then a committee of three members shall be constituted with representatives from ERPC, ERLDC and the requester utility.*
- 4. The result of the study shall be first analysed in the OCC meeting and if necessary, to be referred to TCC and ERPC for final approval for required certification for the prospective period.*

<b>ITEM NO. B11:</b>	<b>Actual Generation Segregation methodology of NTPC Kahalgaon Stage-I &amp; II after Bus Splitting Scheme</b>
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The bus splitting scheme of 400kV Kahalgaon (NTPC) was discussed and agreed in principle in 11<sup>th</sup> Standing Committee meeting of Eastern region held on 20<sup>th</sup> Sep 2010 and completion of Bus splitting scheme is expected during Feb 2019. The bus splitting scheme is as follows:



As per the decision taken in 16<sup>th</sup> Commercial Sub Committee Meeting held on 23.02.2011, Kahalgaon NTPC Stage wise AG computation has to be done by apportioning AG (summation

of all outgoing feeders) in proportion to stage wise GT. It was also decided to adopt this proposal as an interim measure. Accordingly, segregation of STG-I & STG-II generation of Kahalgaon (NTPC) as per above methodology was started w.e.f 01.04.2011 and the same is being followed till date.

Post bus splitting of Kahalgaon, the above methodology may be reviewed. Further, after implementation of Bus Sectionaliser, Meter (Main & Check) may be installed at both end of Bus Sectionaliser.

*In 39<sup>th</sup> CCM, it was decided to constitute a Committee with the following members to finalise the methodology to be adopted for segregation of actual generation of NTPC Kahalgaon Stage-I & II after implementation of bus splitting scheme:*

1. Sh. Shyam Kejriwal, SE, ERPC – Convenor
2. Sh. N. Ahmed, Manager, ERLDC
3. Sh. R.K. Mondal, AGM, NTPC-Kahalgaon
4. Sh. S.K. Singh, GM(AM), Powergrid (ER-I)

*A meeting of the Committee shall be convened at ERPC Secretariat and report shall be submitted to the upcoming TCC.*

*In line with 39<sup>th</sup> CCM, the Committee meeting was held on 4<sup>th</sup> March 2019. Minutes of the meeting are enclosed at **Annexure-B11**.*

NTPC may update the latest status.

TCC may guide.

### **Deliberation in the TCC Meeting**

*TCC approved the methodology finalised by the Committee which is enclosed at Annexure-B11.*

*NTPC informed that the bus splitting scheme would be implemented by April 2019.*

*TCC referred to ERPC for final concurrence.*

<b>ITEM NO. B12:</b>	<b>COD of U#4 (660MW) of Barh STPS –II of NTPC</b>
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Hon'ble CERC in its order dated 20<sup>th</sup> September, 2017 in Petition No. 130/MP/2015 along with IA No. 67/2017 had revised the COD date of U-4 (660MW) of Barh STPS-II as 08/03/2016 in place of 15/11/2014 (Relevant page of CERC order is enclosed at **Annexure-B12a**).

Accordingly, in line with the above decision of CERC, ERPC had revised and issued the REA, DSM & RTA Accounts vide letter dated 12.01.2018 and RTDA Account vide letter dated 02.02.2018 respectively for the period from 15.11.2014 to 07.03.2016 (Copy enclosed at **Annexure-B12b**).

Subsequently, NTPC vide letter dated 18.10.2018 informed that they have filed an appeal before APTEL bearing Appeal No. 330 of 2017 against the above CERC order dated 20.09.2017. Along with the appeal NTPC vide IA No. 840 of 2017 also filed for stay of implementation of the CERC order dated 20.09.2017. In view of above NTPC requested ERPC to keep the revised Accounts in abeyance till the application of stay is decided by Hon'ble Tribunal. In reply, ERPC vide letter dated 19.01.2018 clarified that no stay order has been received till date.

Recently, APTEL has given its judgement for IA No. 840 of 2017 in Appeal No. 330 of 2017. APTEL in its order dated 25th January, 2019 has dismissed the Appeal of NTPC and upheld the impugned order dated 20/09/2017 passed by CERC in petition no. 130/MP/2015 stating that they are of the considered view that the issues raised in the appeal being Appeal No. 330 of 2017 are devoid of merits. (Relevant page of APTEL order is enclosed at **Annexure-B12c**)

Therefore, all the affected beneficiaries of Barh STPS-II along with NTPC and CTU/PGCIL are to initiate action towards settlement of the Accounts as issued by ERPC for the period from 15.11.2014 to 07.03.2016 for implementation of CERC order dated 20/09/2017.

As per the revised statement, beneficiary wise Deviation Charges receivable by NTPC Barh Stg-II Unit IV from the pool for infirm power injection for the period from 15.11.2014 to 07.03.2016 is ₹ 636.86 Cr as per the table below:

<b>Beneficiary</b>	<b>₹ (Crore)</b>
BSPHCL	564.8512231
JUVNL	41.0085656
GRIDCO	25.5745384
SIKKIM	2.7492379
MP(WR)	2.6757824
Total	636.8593474

Moreover, apart from the above, Deviation Charges also receivable by Barh STPS from the DSM pool for the above period is ₹ 63.1484181 Crores.

However, the beneficiaries will get refund of Energy Charges, Capacity Charges and Transmission Charges on account of BARH St-II Unit 4 Infirm for the period 15.11.2014-07.03.2016 which is also reflected in the revised statement.

*In 39<sup>th</sup> CCM, Member Secretary, ERPC informed that the power generated by U-IV (660MW) of Barh STPS-II during the period from 15/11/2014 to 07/03/2016 had been treated as infirm generation due to revision of COD date by the Hon'ble CERC vide order dated 20th September,2017 in Petition no. 130/MP/2015. Accordingly, revised accounts were issued by ERPC Secretariat.*

*NTPC submitted that, as per the Order of CERC, excess payment, if any, received by NTPC during the above period shall be adjusted by NTPC against the capital cost. A letter in this respect has also been received from NTPC (Copy enclosed at **Annexure-B12d**). As and when the revised tariff order is issued by the Hon'ble Commission, NTPC shall revise the bills accordingly.*

*There were detailed deliberation on this issue. During deliberation, it emerged that there was no convergence on the interpretation of CERC order regarding treatment of excess payment received by NTPC during the period from 15/11/2014 to 07/03/2016.*

*It was decided to refer this issue to TCC.*

*Subsequently, GRIDCO wrote a letter to GM (Commercial), NTPC wherein GRIDCO has informed that they had provisionally estimated the refundable amount along with interest and adjusted in the monthly bill payable during the month of December 2018 and January 2019. Copy of the letter is enclosed at **Annexure-B12e**.*

TCC may guide.

### **Deliberation in the TCC Meeting**

*Member Secretary, ERPC elaborated on the issue. He informed that the basic issue lies in the treatment of the excess payment received by the NTPC during the period from 15.11.2014 to 07.03.2016. ERPC Secretariat has already issued the revised REA, DSM, RTA and RTDA accounts. But NTPC has contended that as per the order of CERC, excess payment if any received by NTPC during the above period shall be adjusted by NTPC against the capital cost.*

*In this connection, NTPC informed that the tariff petition for Barh stage II was heard by CERC on 13.03.2019. During the hearing, the honourable CERC held that adjustment due to revised COD shall be made only in the capital cost of the project. On being informed that GRIDCO has already deducted some amount from the running bills of NTPC, the bench directed that the same should be refunded immediately. Further, no such action may be taken by any of the other beneficiaries. The hearing was also attended by counsel for GRIDCO and Bihar.*

*Director(Commercial), GRIDCO informed that CERC order dated 20.09.2017 in petition no 130/MP/2015 has directed that*

*“The revenue earned over and above fuel cost from the sale of infirm power from 15.11.2014 shall be adjusted in the capital cost”*

*He argued that the excess payment received by NTPC was not on account of infirm power and therefore the excess payment received by NTPC on account of fixed and energy charges shall be fully refunded to the concerned beneficiaries.*

*Bihar, Jharkhand and Sikkim endorsed the views of GRIDCO.*

*ERLDC submitted that the issue needs to be resolved at the earliest for proper reflection of outstanding DSM charges.*

*TCC referred the issue to ERPC for further guidance.*

<b>ITEM NO. B13:</b>	<b>Coal requirement for thermal power plants</b>
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MoP vide letter dated 7<sup>th</sup> February 2019 informed that, it has been decided that in view of expected increased power demand in the next few months up to monsoons, all power plants be advised to be watchful, and do maintain plant availability and adequate coal stocks as per norms, in this period.

All the thermal plants are advised to take effective steps for immediate implementation of the decision. The action taken report may also be forwarded to the Ministry at the earliest.

*In 154<sup>th</sup> OCC, all the thermal generators were advised to assess the requirement of coal in the coming few months and take the necessary action to build up adequate stock to ensure uninterrupted supply of power. Power stations were advised to inform ERPC Secretariat any hurdle being faced by them in this respect, so that, if required, a separate meeting would be convened by ERPC Secretariat with the thermal generators, coal companies and the Railways.*

TCC may note.

### **Deliberation in the TCC Meeting**

*TCC advised all the thermal generators to inform ERPC Secretariat any hurdle being faced by them in building up the coal stock. If required, a separate meeting would be convened by ERPC Secretariat with the thermal generators, coal companies and the Railways.*

<b>ITEM NO. B14:</b>	<b>Automatic Under Frequency Load Shedding (AUFLS) Scheme and Mapping of Feeders</b>
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#### **(A) Review of AUFLS Settings**

In 8<sup>th</sup> NPC held on 30<sup>th</sup> November 2018, it was 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 also decided that, NRPC may appoint a Consultant from their own resources as proposed by MS (NRPC) for studying the AUFLS scheme for Indian grid and submit the study report to NPC Secretariat within a time of six months.

The revised load relief for AUFLS computed by NPC Secretariat would be discussed along with the report of Consultant appointed by NRPC (if available), in the next meeting of NPC which would be held in the month of May, 2019.

TCC may note.

### **Deliberation in the TCC Meeting**

*TCC noted.*

## **(B) Mapping of Feeders in SCADA**

In 8<sup>th</sup> NPC held on 30<sup>th</sup> November 2018, NPC emphasized the need of mapping of feeders identified for operation under AUFLS in SCADA system. It was decided that each RPC would submit the details /progress of feeder mapping to NPC Secretariat on a regular basis (quarterly).

*In 154<sup>th</sup> OCC, DVC informed that mapping of the UFR feeders had already been implemented in DVC system.*

*OCC advised all the other States to submit the latest status to ERPC.*

*OCC decided to discuss the issue also in SCADA O&M Meeting scheduled to be held on 6<sup>th</sup> March 2019.*

West Bengal, Bihar, Odisha and Jharkhand may update.

TCC may guide.

### **Deliberation in the TCC Meeting**

*Bihar and Jharkhand have confirmed that mapping of the UFR feeders has been implemented.*

*West Bengal informed that out of 18 S/s only 6 S/s data are available at SLDC. For the remaining 12 S/s the RTUs are old and needed replacement. WBSETCL added that they have already placed a proposal for PSDF funding.*

*OPTCL informed that out of 58 feeders only 14 feeders data are available at SLDC. For mapping of the remaining feeders, the RTUs needed to be replaced as they were old. OPTCL added that replacement of old RTUs is in advance stage and it would be implemented within a year.*

<b>ITEM NO. B15:</b>	<b>STATCOM PROJECT IN EASTERN REGION</b>
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In the 15<sup>th</sup> meeting of SCM held on 27-08-2013, it was agreed to install STATCOM in combination with mechanically switched Reactors (MSR) and Capacitors (MSC) and co-ordinated control mechanism of MSCs and MSRs at Ranchi, Rourkela, Jeypore and Kishanganj substations in Eastern Region.

The matter was again discussed in the 28<sup>th</sup> ERPC/TCC meeting held on 12<sup>th</sup> -13<sup>th</sup> September, 2014 at Goa, wherein, it was decided that POWERGRID may go ahead with implementation of the STATCOM project in Eastern Region with debt – equity ratio of 70:30 funding. The debt part should be funded through PSDF and Equity Component (30%) to be funded by POWERGRID, which was to be recovered through regulated tariff mechanism.

### **1. Status of STATCOMS installed in Eastern Region**

Out of four STATCOMs, three STATCOMs at Rourkela, Jeypore, and New Ranchi were already commissioned. The latest status as updated in 154<sup>th</sup> OCC Meeting is as follows:

Sl No	Location of PGCIL Sub-Station	Dynamic Shunt Controller (MVar)	Mechanically Switched Compensation (MVar)		Latest status
			Reactor (MSR)	Capacitor (MSC)	
1	Rourkela	±300	2x125		<i>In service from March 2018.</i>
2	Ranchi(New)	±300	2x125		<i>Commissioned on 12<sup>th</sup> July 2018</i>
3	Jeypore	±200	2x125	2x125	<i>Commissioned on 30<sup>th</sup> June 2018</i>
4	Kishanganj	±200	2x125		<i>Expected to be commissioned by end of February, 2019</i>

Powergrid may update.

### **Deliberation in the TCC Meeting**

*Powergrid informed that STATCOM at Kishanganj has been commissioned in February, 2019.*

#### **2. Installation of PMUs for observation of the dynamic performance of STATCOMS**

In 39<sup>th</sup> ERPC Meeting, it was decided that,

- i. Power Grid shall immediately place an order on M/s GE for supply and installation of 4 nos. PMUs for 4 STATCOMs in the Eastern Region at an estimated cost of Rs. 40 Lakh.
- ii. The cost of the above should be included within the quantity variation clause under the URTDSM Project funded from PSDF.
- iii. Powergrid shall approach the PSDF Appraisal Committee for inclusion of the above under the quantity variation clause under the URTDSM Project.
- iv. In case PSDF funding for this addition supply and installation is not available, then the cost of PMUs including the installation cost (approx. Rs.40 Lakh) shall be included under the project “Upgradation of SCADA / RTUs / SAS in the Central Sector Stations and strengthening of OPGW network”.

In 153<sup>rd</sup> OCC, Powergrid informed that M/s GE had agreed to supply and install of 4 nos PMUs for 4 STATCOMs in the Eastern Region within the quantity variation clause under the existing URTDSM Project.

Powergrid may update.

### **Deliberation in the TCC Meeting**

*Powergrid informed that amended order has been placed to M/s GE. The materials are expected to be delivered by May 2019 and commissioning would be completed by July 2019.*

*Powergrid added that the cost would be booked under the STATCOM project, not against the quantity variation clause under the existing URTDSM project.*

*TCC agreed.*

<b>ITEM NO. B16:</b>	<b>IMPLEMENTATION OF 4<sup>TH</sup> PHASE AMR INCLUDING REQUIREMENT OF AMR DATA FOR SCADA DATA COMPARISON</b>
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In 39<sup>th</sup> ERPC Meeting, ERPC accorded the approval for procurement and installation of AMRs under 4<sup>th</sup> phase in the Eastern Region at an estimated cost of **Rs. 1.75 Crore** in place of Rs. 93.56 Lakh as approved earlier in the 37<sup>th</sup> ERPC Meeting. ERPC suggested that Power Grid should ensure reliability in data transmission by implementing LAN connectivity through OPGW Network wherever feasible.

In 153<sup>rd</sup> OCC, Powergrid informed that the works had been awarded to M/s TCS on 23<sup>rd</sup> December 2018 at a cost of **Rs.1.69 Cr** after negotiation.

Powergrid added that the work would be completed by October 2019.

In 39<sup>th</sup> CCM, Powergrid informed that LOA for 4th phase has been placed.

ERLDC informed about the expiry of phase wise AMC of AMR for existing location and meters from April 2019 onwards. Powergrid further informed that Phase wise expiry of AMC is commencing from June 2019 onward and Comprehensive AMC plan is being prepared and the same shall be put up separately.

Thereafter, Powergrid vide mail dated 1<sup>st</sup> March 2019 submitted that as per 1<sup>st</sup> phase LOA, AMC for 656 SEM's which are integrated in Phase-I of AMR implementation, will be start expiring from Jun-2019 & will be completely finished in Jun-2020. As off now it is observed that there are some teething problem faced during the entire span of the operation & having AMC will be prudent to counter any deficiency faced in the installed system. Details of the first phase details are as follows:-

- Total Number of Meters connected: 656
- Total DCU Installed: 129

As per the above mentioned LOAs of AMR Phase-1, total 656 no of meters have been integrated with AMR system. As per the LOA, the contract was for one year warranty and 4 years AMC after receiving TOC from ERLDC.

*As per discussion held in 39<sup>th</sup> CCM, PGCIL already requested TCS to submit a new proposal for renewing the AMC. The new AMC will be till Nov-2024. It may be noted that, in AMC price there are some component considered which has already passed useful life & replacement also envisaged in the package.*

**Comprehensive AMC Ballpark Value: 4,16,68,201.00 INR (Excluding GST).**

*Scope of work is enclosed at **Annexure-B16**.*

*However, the proposal is at initial stage only, further deliberation & discussions will be held with the vendor for finalizing the value and scope.*

*In view of above, PGCIL is requested to review the same proposal & provide in principle approval for further processing of the renewal of AMC (First Phase).*



TCC may approve.

### **Deliberation in the TCC Meeting**

*TCC noted the revised cost of **Rs.1.69 Cr** for implementation of 4<sup>th</sup> phase of AMR against the earlier approved estimated cost of Rs 1.75 Cr.*

*TCC accorded the approval for entering AMC with OEM by Powergrid for a period of five years at an estimated value of **Rs.4.17 Cr (excluding GST)** for 656 SEMs which were integrated in phase 1 of AMR implementation.*

*The cost sharing mechanism of AMR shall also be applicable for sharing of the AMC charges.*

*TCC referred to ERPC for concurrence.*

<b>ITEM NO. B17:</b>	<b>REPLACEMENT OF OLD RTUS IN EASTERN REGION FOR REPORTING OF RTU/SAS TO BACKUP CONTROL CENTRES</b>
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The detailed scope of the project as approved in 39<sup>th</sup> ERPC Meeting is enclosed in **Annexure-B17**.

*In 39<sup>th</sup> 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.*
- iv) Member Secretary, ERPC shall coordinate with Power Grid for implementation of the above project.*

Powergrid may update.

### **Deliberation in the TCC Meeting**

*Powergrid informed that the DPR for PSDF would be submitted by April, 2019.*

*ERLDC emphasised that the useful life of old RTUs are going to end in October 2020 and as such calls for urgent action for replacement.*

*TCC took serious note of the delay in replacement of old RTUs in Eastern Region.*

*Powergrid was advised to take expeditious action for speedy replacement of old RTUs in ER.*

*It was decided to review the progress in 156<sup>th</sup> OCC Meeting.*

<b>ITEM NO. B18:</b>	<b>ALTERNATE PATH FOR MALDA-FARAKKA OPGW LINK</b>
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On 6<sup>th</sup> December 2017 at 17:26Hrs due to OPGW communication link failure between Malda - Farakka, data and voice communication interrupted between ERLDC and 17 nos of stations located in North Bengal and Sikkim area for 16 Hrs 23 minutes. It was envisaged to form protection path using Purnea – Biharshariff OPGW link but due to recent tower collapse, the formation of protection path yet to be completed. As per information received from M/s ENICL in 150<sup>th</sup> OCC meeting held on 10<sup>th</sup> October 2018, it would take approximately Six (6) month to restore the line which was out since 10<sup>th</sup> August 2018 due to tower collapse.

In 22<sup>nd</sup> SCADA O & M meeting held on 30<sup>th</sup> October 2018, ERLDC requested POWERGRID to provide another alternate protection path for Malda – Farakka OPGW link till the restoration of 400 kV Purnea – Biharsharif line.

POWERGRID informed that they would explore the possibility of providing protection path using POWERTEL link / other service provider as an interim arrangement.

Member Secretary, ERPC advised POWERGRID to give a presentation on implementation of interim alternate path for Malda – Farakka OPGW link in 39<sup>th</sup> TCC meeting.

In 152<sup>nd</sup> OCC, Powergrid gave a detailed presentation on alternate path for Malda–Farakka OPGW link.

Thereafter, Powergrid informed that the tentative cost implication for providing alternate connectivity between Siliguri 220kV and Muzaffarpur S/s with one STM-4 bandwidth connectivity comes to Rs. 26 Lakhs per annum.

Parallely the Kishanganj-Darbhang-Muzaffarpur OPGW link shall be utilized provisionally subsequent to commissioning of 400kV Kishanganj-Darbhang line by M/s KPTL.

In 153<sup>rd</sup> OCC, Powergrid was advised to implement alternate OPGW link through 400 kV Kishanganj- Darbhanga-Muzaffarpur lines.

OCC advised Powergrid to coordinate with Kalpatru Power Transmission Ltd. and DMTCL for implementation of the scheme.

*In 154<sup>th</sup> OCC, Powergrid informed that a letter had been sent to Kalpatru Power Transmission Ltd. and DMTCL for necessary support to implement the scheme but no reply had been received from them.*

*OCC decided to discuss the issue in SCADA O&M meeting scheduled to be held on 6<sup>th</sup> March 2019 at ERLDC.*

Powergrid may update.

## **Deliberation in the TCC Meeting**

*It was informed that in SCADA O&M Meeting held on 6<sup>th</sup> March 2019, both DMTCL and KPTL agreed to extend the necessary support to implement the scheme. DMTCL has insisted on payment for extending the facility.*

*In the TCC Meeting, Powergrid clarified that as per the terms of TBCB project, DMTCL and KPTL are not entitled for any charges for using the OPGW for SCADA.*

*TCC advised Powergrid to implement the scheme within three months as indicated by Powergrid in SCADA O&M Meeting.*

*TCC advised to review the progress in next SCADA O&M Meeting.*

<b>ITEM NO. B19:</b>	<b>IMPLEMENTATION OF AUTOMATIC DEMAND MANAGEMENT SCHEME (ADMS)</b>
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The latest status along with proposed logic as follows:

<b>Sl No</b>	<b>State/Utility</b>	<b>Logic for ADMS operation</b>	<b>Implementation status/target</b>	<b>Proposed logic (if different from under implementation logic)</b>
1	West Bengal	F <49.7 Hz 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 Hz AND deviation > 12 % or 150 MW	Implemented on 17.06.2016	
3	Bihar	F <49.7 Hz AND deviation > 12 % or 150 MW	They would place the order to Chemtrol for implementation.	F <49.9 AND deviation > 12 % or 150 MW
4	Jharkhand	1. System Frequency < 49.9 Hz AND deviation > 12 % or 25 MW 2. System Frequency < 49.9 Hz AND deviation > 12 % or 50 MW 3. System Frequency < 49.9 Hz AND deviation > 12 % or 75 MW	9 Months Tendering for RTU installation is in progress. Offer received from Chemtrol for implementation.	Condition 1: Block I feeders will be selected for load shedding Condition 2: Block I & II feeders will be selected for load shedding Condition 3: Block I, II & III feeders will be selected for load shedding
5	Odisha	1. System Frequency < 49.9 Hz 2. Odisha over-drawl > 150 MW 3. DISCOM over-drawl > (40 MW)	10 Months Sent for PSDF approval.	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.	
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In 142<sup>nd</sup> OCC, members opined that uniform logic should be implemented for all the states. OCC decided to review the logic of ADMS after implementation of the scheme by all the states.

*In 154<sup>th</sup> OCC, Bihar and JUSNL informed that Chemtrol was not responding. As a result, there had been no progress in the implementation of ADMS.*

*OCC decided to discuss the issue in SCADA O&M Meeting scheduled to be held on 6<sup>th</sup> March 2019 at ERLDC. OCC advised Bihar and JUSNL send a suitable representative to the meeting with all the relevant details for fruitful discussion.*

BSPTCL, OPTCL, JUSNL and Sikkim may update.

TCC may discuss.

### **Deliberation in the TCC Meeting**

*ERLDC informed that in SCADA O&M Meeting held on 6<sup>th</sup> March 2019, Chemtrol has agreed to implement ADMS in Bihar and Jharkhand system without any additional charges. However necessary consent for making payment of Rs 4 lakhs(excluding GST) for remaining period of maintenance contract shall be given before implementing the same.*

*In the TCC Meeting both Bihar and Jharkhand gave consent for making necessary payment.*

<b>ITEM NO. B20:</b>	<b>FLEXIBLE OPERATION OF THERMAL POWER STATIONS- IDENTIFICATION OF PILOT PROJECTS</b>
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Central Electricity Authority vide letter dated 16<sup>th</sup> February 2018 informed that a special Task Force was constituted under IGEF Sub-Group-I for enhancing the flexible operation of existing coal-fired power plants. The Committee has recommended for implementation of measures for 50%, 40% and 25% minimum load in thermal power stations. The measures for 50% minimum load operation require no investment or minimal investment. (Report is available on CEA website under TRM division)

Subsequently, a meeting was held under the Chairmanship of Member (Thermal) on 8th February 2018 wherein it was decided that 55% minimum load operation would be implemented nationwide in first phase. Further, six units, comprising of two units of NTPC and one unit each from DVC, GSECL, APGENCO, MSPGCL, would be taken up for 55%

minimum load operation on pilot basis as 55% minimum load operation in line with the CERC notification dated 6th April 2016 and 5th May 2017 (IEGC 4th Amendment).

In 142<sup>nd</sup> OCC Meeting, NTPC informed all the units of NTPC were capable of 55% minimum load operation.

In 37<sup>th</sup> TCC meeting, DVC informed that they would demonstrate the capability of 55% minimum load operation for one unit of DSTPS.

In 39<sup>th</sup> TCC, TCC advised DVC to make a plan for demonstration of capability testing with the available grade of coal and the limitations in achieving the 55% of technical minimum, if any may be brought in the report to be submitted in the upcoming OCC Meeting.

*In 154<sup>th</sup> OCC, DVC informed that they could not demonstrate the capability of 55% minimum load operation of DSTPS units due to poor coal quality issues. However, DVC had achieved the 55% of technical minimum operation for units at Chandrapura TPS and Koderma TPS.*

*OCC advised DVC to submit a report to ERPC within two days to place the details in TCC Meeting.*

DVC may update.

### **Deliberation in the TCC Meeting**

*DVC informed that they have already achieved 55 % minimum load operation for unit #1 of DSTPS on 16<sup>th</sup> Feb, 2019.*

<b>ITEM NO. B21:</b>	<b>STATUS OF CONSTRUCTION OF CHUZACHEN 132 kV BAYS AT RANGPO S/S OF POWERGRID</b>
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Construction of 132 kV bays at Rangpo S/s meant for evacuation of power from Chuzachen HPS was undertaken by Department of Power, Govt of Sikkim, under consultancy with POWERGRID.

In 35<sup>th</sup> TCC, Sikkim informed that retendering work was in progress.

Sikkim assured that they would commission the bays within the target date i.e. December, 2017.

In 36<sup>th</sup> TCC, Sikkim informed that the work has been awarded and commissioning is expected by March, 2018.

In 37<sup>th</sup> TCC, Sikkim assured that they would resolve the issue in coordination with PGCIL ER-II.

In 38<sup>th</sup> TCC, Sikkim informed that work is in progress and it will be completed by September 2018.

*In 39<sup>th</sup> TCC, Sikkim informed that the work was delayed due to unavoidable circumstances and assured that the work will be completed by February 2019.*

Sikkim may update.

## **Deliberation in the TCC Meeting**

*Sikkim informed that all the equipments have arrived at site. The work will be completed by April, 2019.*

<b>ITEM NO. B22:</b>	<b>REPAIR/RECTIFICATION OF TOWER AT LOCATION 79 OF 132KV RANGPO-MELLI D/C LINE AND CHUZACHEN (RANGPO) -GANGTOK TRANSMISSION LINES</b>
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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 137<sup>th</sup> 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 37<sup>th</sup> 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 145<sup>th</sup> OCC, Sikkim informed that the proposal had been sent to State Govt. for approval.

In 148<sup>th</sup> 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 39<sup>th</sup> 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.*

Sikkim may update.

TCC may deliberate.

## **Deliberation in the TCC Meeting**

*Sikkim informed that there is no change of status.*

*Powergrid informed that the condition of tower is very much degraded and needs immediate attention.*

*TCC advised Powergrid to furnish the necessary details to ERPC Secretariat for taking up with the authorities of Sikkim.*

<b>ITEM NO. B23:</b>	<b>LOAD TRIMMING SCHEME FOR 400/132 KV MOTIHARI ICTs</b>
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400/132 kV Motihari substation in Bihar is having a two ICTs each with 200 MVA capacity. It has been observed that, due to higher load catering of Bihar along with Nepal, the ICTs are running without N-1 reliability. On 22<sup>nd</sup> August 2018 at 14:59 Hrs, the ICTs combined load increased to 280 MW and one ICT got tripped on mal-operation of OSR relay due to moisture ingress. This led to overloading of other ICT, which tripped in over-current protection. This led to the loss of 280 MW of Bihar and Nepal.

Such unreliable operation of ICTs due to higher load is not desirable and following action point may be desired:

1. Implementation of Load Trimming Scheme (LTS) on Motihari ICTs.
2. BSPTCL long term plan to ensure the meeting such high demand in the areas.
3. Prevention of Tripping of Motihari ICT on OSR relay mal-operation during moisture ingress in rainy season.
4. Capacity augmentation as long term measures may be planned.

In 149<sup>th</sup> OCC, it was informed that one more ICT of 315 MVA, 400/132 kV had been planned in 13th Plan, which would be commissioned by May 2020.

OCC advised Bihar to plan a load-trimming scheme till the availability of 3<sup>rd</sup> ICT at Motihari S/s.

*In 39<sup>th</sup> TCC, BSPTCL requested Powergrid to expedite the installation of 3<sup>rd</sup> ICT at Motihari S/s. BSPTCL would draw up a plan for load trimming at Motihari to take care of the eventualities arising out of tripping of any of the existing two ICTs. The plan will be finalized within a month and the same will be shared with ERPC and ERLDC.*

*In 152<sup>nd</sup> OCC, BSPTCL explained the load trimming scheme.*

*OCC advised BSPTCL to trip radial loads instead of tripping 132kV lines. OCC also advised to ensure reliable communication for transferring trip signal to respective CBs for successful operation of load shedding scheme.*

*OCC advised BSPTCL to revise the scheme accordingly and submit the details to ERPC and ERLDC.*

BSPTCL may update.

### **Deliberation in the TCC Meeting**

*Powergrid informed that the scheduled date of commissioning of 3<sup>rd</sup> ICT at 400kV Motihari S/s is March, 2020 however, they would expedite to install the ICT by December 2019.*

*It was informed that BSPTCL has submitted the details of revised scheme. TCC advised to review the scheme in next OCC meeting for discussion and final approval.*

<b>ITEM NO. B24:</b>	<b>Shutdown of unit-2 of MPL</b>
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WBSEDCL vide letter dated 8<sup>th</sup> February 2019 informed that shutdown of unit-2 (525 MW) of MPL may be shifted from 06.04.2019 -30.05.2019 to coming winter in view of peak summer and Loksabha elections.

*In 154<sup>th</sup> OCC, no consensus was arrived at regarding the proposal of WBSEDCL for rescheduling of MPL Unit-2 shutdown, OCC referred the issue to TCC for further decision.*

TCC may guide.

### **Deliberation in the TCC Meeting**

*MPL agreed to reschedule the shutdown of unit #2 to 15<sup>th</sup> June, 2019 as per the request of WBSEDCL.*

<b>ITEM NO. B25:</b>	<b>Maintenance Schedule of MTPS Unit #4 (195 MW) of KBUNL</b>
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KBUNL vide letter dated 1<sup>st</sup> March 2019 requested to allow the overhauling of unit #4 between June 2019 to Aug 2019 due to following constraints:

- As per OEM recommendation, there is mandatory inspection of generator at first 10000 running hours of generator, which is already due.
- Poor Condenser vacuum, which affects the performance of machine badly.
- Unit 3 (195MW) First overhauling after CoD is also planned between 15.11.2019 to 19.12.2019 (approved as per LGBR 2019-2020).

*The issue was already discussed in 154<sup>th</sup> OCC, no consensus was arrived at regarding the proposal of KBUNL, OCC referred the issue to TCC for further decision.*

TCC may guide.

### **Deliberation in the TCC Meeting**

*Bihar submitted that they would agree to the shutdown of MTPS Unit #4 (195 MW) from 15<sup>th</sup> June 2019 provided that one unit of NPGC is declared under commercial operation in April 2019 and start stable generation. Otherwise the shutdown should be preferably taken after Summer peak (June 2019).*

*KBUNL informed that one unit of NPGC would be commercialized in the month of April 2019.*

*Both Bihar and KBUNL agreed to review this in OCC Meeting of May 2019.*



<b>ITEM NO. B26:</b>	<b>PAYMENT/RECEIPT STATUS FROM VARIOUS POOL ACCOUNTS IN ER</b>
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## **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 06.02.2019 is enclosed at **Annexure – B26.1**. The current principal outstanding Deviation Charge of JUVNL & BSPHCL is ₹ 55.14 Cr & ₹ 9.83 Cr respectively considering bill up to 20.01.2019. ERLDC is regularly giving reminders to BSPHCL & JUVNL to liquidate the outstanding Deviation charges.

Further SIKKIM is not paying DSM charges in Pool since last few years and waiting for adjustment with the receivable amount.

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

*In 39<sup>th</sup> CCM, ERLDC informed that JUVNL has liquidated Rs. 13.88 Cr. JUVNL was asked to clear the pending dues at the earliest. BSPHCL & SIKKIM representative were absent in the Meeting.*

BSPHCL, JUVNL & SIKKIM may update.

### **Deliberation in the TCC Meeting**

*BSPHCL informed that the outstanding amount has been paid on 13.03.2019.*

*Jharkhand informed that payment is under process and it would take two months to clear the dues.*

*Sikkim informed that the payment would be made by March 2019.*

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

Due to delayed payment of deviation charges in DSM Pool in FY 2017-18, Interest was computed for all the DSM Pool Member. ERLDC vide letter No. संदर्भ:पूक्षेभारप्रेके./एम.ओ/यू-11/2126 dated 26.06.18 was issued the interest statement for FY 2017-18.

The statement of interest amount is enclosed in **Annexure-B20.2**. Settlement of delayed payment Interest for 2017-18 for the recipient constituents has been done on 01.06.18. SIKKIM & IBEUL are yet to clear the outstanding interest amount of 2017-18. In 38<sup>th</sup> CCM, it was decided that ERPC Secretariat would write a letter to the concerned utilities to release the outstanding amount at the earliest. However concerned utilities are yet to make the payment.

Sikkim may update.

### **Deliberation in the TCC Meeting**

*Sikkim informed that the payment would be made by March 2019.*

#### **3) REACTIVE ENERGY CHARGES – PRESENT STATUS.**

The updated position of Receipt/Payment of Reactive Energy Charges in the pool as on 06.02.2019 (considering bill up to 20.01.2019) is indicated in **Annexure –B20.3**. The total outstanding receivable on account of Reactive charges from West Bengal is ₹ 1.84 Cr & from BSPHCL is ₹ 0.46 Cr. Reactive Charge receivable from SIKKIM is ₹ 3.1 Lac. SIKKIM has not paid the Reactive energy Charges since more than last one year. JUVNL has also the outstanding of ₹ 0.32 Cr payable to Reactive Pool.

*In 39<sup>th</sup> CCM, JUVNL informed that outstanding dues will be cleared at the earliest. BSPHCL, WBSETCL/WBSEDCL, SIKKIM representative were not present in the Meeting. It was decided that ERPC Secretariat would write Letter to above constituents for resolving their pending issues.*

WBSETCL/WBSEDCL, SIKKIM & JUVNL may respond.

### **Deliberation in the TCC Meeting**

*BSPHCL informed that the outstanding amount has been paid on 13.03.2019.*

*Jharkhand informed that payment is under process and it would take two months to clear the dues.*

*Sikkim informed that the payment would be made by March 2019.*

#### **4) Outstanding reactive energy charge against WBSEDCL**

Reactive Energy charges amount receivable from WBSEDCL prior to 04.01.2016 was ₹ 1.82 Cr (prior to Suo-moto order dated 21.07.2016 of the Hon'ble WBERC in the matter of case no: SM-14/16-17) which was long pending.

However, WBSEDCL has started liquidating the payment in EMI and so far WBSEDCL has paid ₹ 0.91 Cr in 3 installments (3 X 3025688 = 9077064) and 3 more installments amounting to ₹ 0.91 Cr are pending.

WBSETCL/WBSEDCL may update.

### **Deliberation in the TCC Meeting**

*WBSEDCL informed that two pending installments would be paid as per schedule.*

### 1. Signing of reconciliation statement

The 3<sup>rd</sup> quarter of F.Y 2018-19 reconciliation statements are required to be signed on priority in respect of GRIDCO, WBSEDCL, Sikkim & Jharkhand besides II and III qtrs. in case of DVC.

*In 39<sup>th</sup> CCM, it was informed that the reconciliation between NHPC & GRIDCO is going to be sorted out shortly. JUVNL intimated that they would sign the reconciliation statement within one week. WBSEDCL, DVC, SIKKIM representatives were not present in the meeting.*

GRIDCO, WBSEDCL, DVC, SIKKIM & Jharkhand may please update the plan for signing the reconciliation statements.

### Deliberation in the TCC Meeting

*NHPC informed that GRIDCO, Sikkim and Jharkhand has signed the reconciliation statement.*

*DVC informed that they will send the signed reconciliation statement within two days.*

*WBSEDCL informed that they will sign it shortly.*

### 2. Payment of Late Payment Surcharge by WBSEDCL

The total amount of LPS ₹ 28.78 Crs. against energy of TLDP-III has been adjusted from the payment received dated 06.12.2018 as per new NHPC payment and rebate scheme dated 10.07.2018 and accepted by WBSEDCL vide their letter No. CE/PTP/NHPC/293 dated 25.09.2018. Thus surcharge amount of ₹ 28.78 Crs is more than 60 days on balance principal amount as on 31.01.2019.

### Deliberation in the TCC Meeting

*WBSEDCL and NHPC agreed to settle the issue bilaterally.*

*TCC suggested that in case the issue still remains unresolved the same should be communicated to MS, ERPC who shall convene a separate meeting to resolve the issue.*

### 3. Extension of PPA in respect of TLDP-III & IV Power Stations:

The PPA of TLDP-III Power station has already expired on 31.03.2018 while PPA for TLDP IV project is valid for 05 years period from COD and the same will be expiring on 10.03.2021. Only the formal supplementary agreement is required to regularize extension of these PPA's which has been already confirmed by WBSEDCL vide letter dated 26.07.2012. It is pertinent to mention here that as per minutes of meeting of 103rd ERE Board held on 27.04.2002 at Chalsa and circulated by EREB vide their letter no. EREB/PSD/BOARD/2002/2970-3033 dated 24.05.2002, Principal Secretary (Power), Govt. of West Bengal have confirmed that the entire

power from TLDP-III & TLDP-IV H.E. Projects would be absorbed by WBSEB as per the commitment of WBSEB to absorb entire power generated by both the power stations.

### **Deliberation in the TCC Meeting**

*WBSEDCL and NHPC agreed to settle the issue bilaterally.*

*TCC suggested that in case the issue still remains unresolved the same should be communicated to MS, ERPC who shall convene a separate meeting to resolve the issue.*

#### **4. Selling power from upcoming 500MW Teesta VI Project:**

NHPC is envisaging to sell power from its upcoming 500MW, Teesta-VI project in Sikkim. Therefore, in principle consent for the entire period of life i.e 35 years is required from the beneficiaries of Eastern region except for BSPHCL & JBVNL who have already given their consent.

*In 39<sup>th</sup> CCM, it was decided to place the agenda in the upcoming TCC meeting.*

TCC may discuss.

### **Deliberation in the TCC Meeting**

*Odisha informed that they would not require any share from Teesta-VI HEP project.*

*TCC advised Member Secretary, ERPC to take up with West Bengal and Sikkim to ascertain their requirement of power if any from this project.*

<b>ITEM NO. B28:</b>	<b>Agenda items by Powergrid</b>
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#### **a) Non Opening of LC requisite amount of LC :**

- 1) Following constituents are required to enhance/ extend LC towards Payment Security Mechanism, as per CERC Regulations:

Sl No	Name of DIC's	Present Value of LC	Amount(in Cr.)
			Value of LC Required
(i)	North Bihar Power Distribution Company Limited(NBPDCL)	9.73	34.50
(ii)	South Bihar Power Distribution Company Limited(SBPDCL)	14.50	51.83
(iii)	Ind-Barath Energy (Utkal) Limited	--	17.50
(iv)	South Eastern Railway(SER)	--	3.15
(v)	East Central Railway(ECR)	--	43.07
(vi)	Damodar Valley Corporation(DVC)	6.99	21.12

- 2) Following constituents are required to open new LC towards grant of LTA from Kanti Bijlee Utpadan Nigam Limited Stage –II (2x195 MW) :

Amount(in Cr.)		
SI No	Name of DIC's	Value of LC to be open
(i)	DVC	0.42
(ii)	GRIDCO	0.92
(iii)	Jharkhand Bijli Vitran Nigam Limited(JBVNL)	0.22
(iv)	Power Deptt. Govt. of Sikkim	0.03
(v)	West Bengal State Electricity Distribution Company Ltd.(WBSEDCL)	0.83
	Total	2.42

The above LC for requisite value and validity required as per CERC Regulations, non availability causing serious problem for POWERGRID to comply with the provisions of CERC Regulations and Loan Covenants.

### **Deliberation in the TCC Meeting**

*TCC advised all the respective constituents to open the LC of requisite amount as mentioned above in order to have compliance with CERC regulation.*

#### **b) Payment of Outstanding dues more than 60 days :**

Amount (in Cr.)			
SI No	Name of DIC's	Total Outstanding dues	Outstanding due more than 60 days
(i)	Vedanta Ltd.	11.59	11.59
(ii)	GMR Kamalanga Energy Ltd.	52.50	38.62
(iii)	Jindal India Thermal Power Limited	2.55	2.55
(iv)	Ind-Bharat Energy (Utkal) Limited	208.61	205.74
(v)	Dans Energy Pvt. Limited	70.76	64.60
(vi)	Jal Power Corporation Limited	45.84	43.95
(vii)	Damodar Valley Corporation(DVC)	177.61	163.14
(viii)	West Bengal State Electricity Distribution Company Ltd.(WBSEDCL)	85.35	7.78
(ix)	GRIDCO Ltd	99.58	23.26
(x)	TeestaValley Power Transmission Ltd(TPTL)	5.75	5.75
(xi)	Teesta Urja Limited(TUL)	8.50	8.50
(xii)	Power Deptt. Govt. of Sikkim	3.30	1.63
(xiii)	Jharkhand Bijli Vitran Nigam Limited(JBVNL)	34.66	15.91
(xiv)	North Bihar Power Distribution Company Limited(NBPDCL)	105.44	42.10
(xv)	South Bihar Power Distribution Company Limited(SBPDCL)	107.80	16.05
	Total	1019.84	651.17

(viii) The outstanding pertaining to WBSEDCL (Surcharge @ 6.7 Cr & Bill # 4 @ 1.89 Cr). WBSEDCL has agreed to pay Surcharge bill in 24 monthly installment & started making payment in the month of August'18. Till date they had paid Sixth (6) installments. However, WBSEDCL has not admitted 1.89 Cr towards Bill # 4.

(ix) The outstanding pertaining to GRIDCO (Surcharge @ 23.26 Cr)

TCC may note.

### **Deliberation in the TCC Meeting**

*TCC requested concerned constituents to liquidate the outstanding dues.*

*DVC informed that there is a dispute in outstanding dues shown by the Powergrid. This has been referred to CERC.*

<b>ITEM NO. B29:</b>	<b>Approval for the bay swapping arrangement for Commissioning of 1 no 125 MVAR Bus Reactor and 1 no 400 kV line bay at Baharampur under ERSS-XV</b>
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Under ERSS-XV, apart from 400 KV Berhampur-Farakka-D/C (Twin HTLS), one no, 125 MVAR Bus Reactor also envisaged to control persistent over voltage at Berhampur S/S.

In 138<sup>th</sup> OCC meeting, it was decided to commission above reactor on urgent basis to control voltage problem around Berhampur. Accordingly, Powergrid commissioned above reactor at the allotted Bay 406 as per the scheme ERSS-XV on priority basis to resolve voltage problem issue (DOCO: 30.03.2018).

For commissioning of the above reactor at the allotted Bay 406, one ckt of existing line (400 KV Farakka-Berhampur-S/C) which was connected at bay 406 was shifted to newly constructed 412 Bay as an interim arrangement till the line was shifted to Sagardhigi on 28<sup>th</sup> July 2018.

Thereafter, 400 KV Farakka-Berhampur-D/C line (twin HTLS) was charged at bay 409 & 412 on 1<sup>st</sup> September 2018.

Therefore, commissioning of one no 125 MVAR Bus Reactor and utilization of one no new 400 kV line bay at Berhampur from 30.03.2018 under ERSS-XV may please be agreed.

Powergrid may explain.

### **Deliberation in the TCC Meeting**

*TCC noted that the installation of the reactor was helpful in controlling the voltage at Berhampore. The requirement of reactor was also recommended by OCC.*

*TCC recommended post-facto approval of the commissioning and utilization of one number new 400 kV line bay (bay no 412) at Berhampur from 30.03.2018 to facilitate the installation of 125 MVAR bus reactor.*

*TCC referred to ERPC for concurrence.*

*However, TCC advised Powergrid to intimate such cases in time in future.*

*Powergrid agreed to comply with this.*

<b>ITEM NO. B30:</b>	<b>Additional Agenda</b>
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## **1. Presentation on “Technical Standards for Connectivity to the Grid” by CEA**

### **Deliberation in the TCC Meeting**

*CEA gave a brief presentation on “Amendment in CEA (Technical Standards for Connectivity to the Grid) Regulations 2019” and “Amendment in CEA (Technical Standards for Distributed Generation Resources) Regulations 2019” highlighting the major changes in the Regulations.*

*TCC appreciated and advised Member Secretary, ERPC to conduct a workshop on the Amendments for the benefit of ER constituents.*

## **2. 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 6<sup>th</sup> 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 favor 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 2018-19 by ER constituents is given in **Annexure – C13.7**. Letters to this effect has been issued by ERLDC to the defaulting entities.

IBEUL & Tashiding (SHIGA) have to open fresh LC but they have not opened the LC till date.

BSPHCL, JUVNL, SIKKIM & APNRL have not been renewed after expiry of their LC. In 39<sup>th</sup> TCC/ERPC Meeting, JUVNL had assured to open the LC with requisite amount shortly. Rest of the constituents who have to open the LC have opened LC.

*In 39<sup>th</sup> CCM, ERLDC informed that the letters had been sent to the defaulting entities to open the required LC but there was no response from their end.*

*BSPHCL, SIKKIM, IBEUL & TASHIDING representative were not available in the meeting.*

*It was decided that ERPC Secretariat would write a letter to concerned utilities to open the requisite LCs at the earliest.*

### **Deliberation in the TCC Meeting**

*ERLDC emphasised for early opening of LC in compliance with CERC regulation.*

*TCC advised all the respective constituents to open the LC of requisite amount as mentioned above.*



## PART C: ITEMS FOR INFORMATION

**The following items are placed before TCC for noting and compliance:**

<b>ITEM NO. C1 :</b>	<b>STATUS OF PROJECTS FUNDED UNDER PSDF SCHEMES</b>
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Latest status as updated in 154<sup>th</sup> OCC Meeting is as follows:

### **A. Projects approved:**

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.	100 % Supply and Erection is Completed. Compilation of final bills is in progress.
2		Renovation & modernisation of transmission system for relieving congestion in Intra-State Transmission System.	22-05-17	25 months from date of release of 1 <sup>st</sup> instalment	70.13	21.03 Cr	Order has been placed . Work is in progress.
3		Installation of switchable reactor at 400kV & shunt capacitors at 33kV	22-05-17	19 months from date of release of 1 <sup>st</sup> instalment	43.37	6.59 Cr	Order had been placed and work is in progress.
4	WBPDC	Implementation of Islanding scheme at Bandel Thermal Power Station	10.04.17	March 2018	1.39 Cr	1.25 Cr	<i>The islanding scheme had been implemented and in operation wef 15.11.2018</i>
5		Upgradation of Protection and SAS		April 2020	23.48	2.348 Cr	Bid opened and order has been placed. Work started.
6	OPTCL	Renovation & Up-gradation of protection and control systems of Sub-stations in the State of Odisha in order to rectify protection related deficiencies.	10.05.15	30.11.18	162.5 Cr.	37.79 Cr	Total contract awarded for Rs. 51.35 Cr
7		Implementation of OPGW based reliable communication at 132kV and above substations	15.11.17		25.61 Cr.		Agreement signed on 03.01.2018
8		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		
9	OHPC	Renovation and up-gradation of protection and control system of 4 nos.OHPC substations.		<i>U.Kolab, Balimela, U.Indravati, Burla, Chiplima March 2019</i>	22.35 Cr.	2.235 Cr	Placed work order.
10	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	85% of work has been completed. Contract awarded for Rs.71.37 Cr till date. The work would be completed by Feb 2019.
11		Installation of capacitor bank at different 35 nos. of GSS under BSPTCL	5/9/2016	31 <sup>st</sup> March 2019	18.88 crore	Nil	Work awarded for all GSS. 90% supply and 60% of erection had been completed.

12		Renovation & up-gradation of protection and control system of 12 nos. 132/33 KV GSS under BSPTCL.	02.01.17	31 <sup>st</sup> 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.
13	JUSNL	Renovation and up-gradation of protection system	September 2017	15 Months	138.13 crores		LOA placed to Siemens on 28 <sup>th</sup> Sep 2018.
14	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.
15		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.	1 <sup>st</sup> installment of 14.05 Cr. received on 21.12.2017	Work awarded for 77.97 Cr.
16	POWERGRID	Installation of STATCOM in ER		June 2018	160.28 Cr	16.028 Cr	Work is in progress, expected to complete by June 2018. STATCOM at Rourkela has been commissioned.
17	ERPC	Creation & Maintenance of web based protection database and desktop based protection calculation tool for Eastern Regional Grid	17.03.16	Project is alive from 30 <sup>th</sup> October 2017	20 Cr.	4.94 Cr. + 9.88 Cr.	1) Protection Database Project has been declared 'Go live' w.e.f. 31.10.17. 2) Pending training on PDMS at Sikkim and 3 <sup>rd</sup> training on PSCT has been also completed at ERPC Kolkata.
18a	ERPC	Training for Power System Engineers	27.07.18		0.61 Cr.	Nil	Approved
18b		Training on Power market trading at NORD POOL Academy for Power System Engineers of Eastern Regional Constituents	27.07.18		5.46 Cr.	Nil	

#### B. Projects under process of approval:

SN	Name of Constituent	Name of Project	Date of Submission	Estimated cost (in Rs.)	Latest status
1	Sikkim	Renovation & Upgradation of Protection System of Energy and Power Department, Sikkim.	09-08-17	68.95 Cr	The proposal requires third party protection audit. Issue was discussed in the Monitoring Group meeting in Siliguri on 8.6.2018. Sikkim was asked to coordinate with ERPC.
2		Drawing of optical ground wire (OPGW) cables on existing 132kV & 66kV transmission lines and integration of leftover substations with State Load Despatch Centre, Sikkim	09-08-17	25.36 Cr	Scheme was approved by Appraisal Committee. It was sent to CERC for concurrence.
3	JUSNL	Reliable Communication & Data Acquisition System upto 132kV Substations.	23-08-17	102.31 Cr	Scheme was approved by Appraisal Committee. It was sent to CERC for concurrence.
4	OPTCL	Implementation of Automatic Demand Management System (ADMS) in SLDC, Odisha	22-12-17	3.26 Cr	Scheme was approved by Appraisal Committee. It was sent to CERC for concurrence.
5		Protection upgradation and installation of SAS for seven	12-03-18	41.1 Cr.	Scheme examined by TSEG on 20.03.2018. Inputs sought from the

		numbers of 220/132/33kV Grid substations (Balasore, Bidanasi, Budhipadar, Katapalli, Narendrapur, New-Bolangir&Paradeep).			entity are awaited.
6	WBSETCL	Implementation of Integrated system for Scheduling, Accounting, Metering and Settlement of Transactions (SAMAST) system in West Bengal	22-12-17	25.96 Cr	Proposal recommended by Appraisal committee as communicated on 16.11.2018.
7		Installation of Bus Reactors at different 400kV Substation within the state of West Bengal for reactive power management of the Grid	12-03-18	78.75 Cr.	Proposal recommended by Appraisal committee as communicated on 16.11.2018.
8		Project for establishment of reliable communication and data acquisition at different substation at WBSETCL.	10-05-18	80.39 Cr.	Proposal recommended by Appraisal committee as communicated on 16.11.2018.
9	BSPTCL	Implementation of Scheduling, Accounting, Metering and settlement of Transaction in Electricity (SAMAST)in SLDC Bihar.	27-02-18	93.76 Cr.	Scheme examined by TSEG on 20.03.2018 & 31.05.2018. Further inputs furnished by BSPTCL on 1.8.2018. Shall be examined in the next meeting of TSEG.

*In 154<sup>th</sup> OCC, it was informed that, in PSDF review Committee meeting held on 18<sup>th</sup> February 2019, it was decided that all the constituents are to submit their fund requisition by 15<sup>th</sup> March 2019 to the nodal agency for all the approved schemes.*

*Regarding sl no 12 in approved projects, BSPTCL was advised to submit the latest status to the nodal agency.*

<b>ITEM NO. C2 :</b>	<b>Islanding Scheme of IB-TPS</b>
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Special Meeting on Islanding Scheme of IB-TPS held at ERPC, Kolkata on 12<sup>th</sup> December 2018 at 11:00hrs. After detailed discussion, the following were decided:

- The alarm for islanding scheme shall be initiated at 49.2 Hz at both Budhipadar and IB TPS to alert the operators
- Islanding of one unit (210 MW) of IBTPS with the selected loads of 149 MW connected through 132 kV level at Budhipadar substation will be initiated at 47.8 Hz of grid frequency with 250 msec time delay.
- The islanding relay Micom P341 at Budhipadar will give trip command to all 220KV feeders connected to Bus-I and Bus II along with Bus coupler except Auto transformer-I & II and selected islanding IB TPS ckts either (IB -1 & 3) or (IB-2 & 4).
- Give trip command to circuit breakers of 132kV Budhipadar-Lapanga S/c line, 132kV Budhipadar-Jharsuguda D/C line and 132kV Budhipadar-Rajgangpur S/C lines at Budhipadar end.
- It will send carrier command to both Kalunga and Tarkera end to trip 132kV Kalunga-Tarkera S/c line from both the ends to make radial load at Kalunga.

- It will send carrier signal to IB TPS to start ramping and adjust IB TPS (one unit) generation to match the load.

*In 153<sup>rd</sup> OCC, OPTCL and OPGC were advised to implement the islanding scheme.*

*OPTCL and OPGC informed that the islanding scheme would be implemented by June 2019.*

<b>ITEM NO. C3 :</b>	<b>RGMO/FGMO and PSS Tuning of Generators in Eastern Region</b>
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In line with 148<sup>th</sup> OCC decision, a separate meeting on Restricted Governor /Free Governor Mode Operation and PSS Tuning of generators with the power station authorities in the Eastern Region was held on 31<sup>st</sup> January 2019. All the station representatives stated that the gap in understanding the provisions of the grid code had been addressed through the deliberations in the meeting. The minutes of the meeting are enclosed at **Annexure-C3**.

<b>ITEM NO. C4 :</b>	<b>Constitution of Committee for analysing the major outages of ISTS elements of Eastern Region</b>
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ERPC Secretariat is issuing certificate for availability of Transmission elements of all ISTS licensee of Eastern Region. ERPC Secretariat has to certify various types of outages based on the reasons specified with reasonable restoration time. Recently, in few cases of major outages, it becomes difficult to ascertain all the facts to arrive at the reasonability of the outage and reasonable time of restoration. Therefore a Committee with members from ERPC, OPTCL, Powergrid, WBSETCL and Sterlite was constituted for **Analysing the major outages of ISTS elements of ER** to identify the category of outage and reasonable restoration time.

The committee will function as per the following guidelines:

- The Committee shall meet from time to time to analyse the various outages as referred by Member Secretary, ERPC.
- The Convener of the committee shall coordinate with all the members to organize meetings.
- The Committee shall look into the various details of causes for outage of transmission elements and suggest the category of outage and reasonable restoration time period for of the transmission element.
- The committee in its report/minute shall indicate the category and reasonable time period to be considered for each category for all outages as per the prevailing CERC regulations and CERC/CEA/CTU standards.
- ERLDC may be invited on case to case basis as and when felt by the committee members for verifying the outage time, log, record etc. as available with ERLDC.
- The other concerned transmission licensee may be invited on case to case basis for explaining the details of outages of their respective elements.
- The above members from Powergrid and Sterlite Power shall not take part in the decision making while analyzing outages of their respective elements. However, in

such cases their function shall be restricted to represent or explain their cases of outages to the Committee.

- viii) If required, the committee shall undertake site visit for assessing the actual position in case of major failure of transmission elements which require higher restoration time beyond the standard allowable restoration period.

<b>ITEM NO. C5 :</b>	<b>STATUS OF 400KV TEESTA III-RANGPO-KISHANGANJ D/C LINE</b>
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#### **A. STATUS OF 400KV TEESTA III- KISHANGANJ LINE**

ERLDC vide letter dated 10.01.2019 informed that 400kV Teesta\_III-Kishanganj (from Kishanganj end to Rangpo LILO point) along with associated bays (410) & 63MVAR LR at Kishanganj has charged on 04.01.2019.

#### **B. STATUS OF 400KV RANGPO-KISHANGANJ LINE**

TPTL vide letter dated 20<sup>th</sup> February 2019 informed that 400kV Rangpo-Kishanganj line (upto Rangpo LILO point) along with 63 MVAR line reactor and associated bays (no. 411) at Kishanganj have been put under commercial operation with effect from 00:00 hrs of 13<sup>th</sup> February 2019.

#### **C. STATUS OF 400KV DIKCHU-RANGPO LINE**

TPTL vide letter dated 29<sup>th</sup> November, 2018 informed that The District Collector of East District, Sikkim vide letter dated 28.11.18 has accorded the permission for charging the 400kV Dikchu- Rangpo line. Subsequently, the line was charged on 30.11.2018.

<b>ITEM NO. C6 :</b>	<b>ESTABLISHMENT OF RENEWABLE ENERGY MANAGEMENT CENTRE (REMC) IN EASTERN REGION</b>
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The Government of India has taken up an ambitious programme for capacity addition from Renewable Energy Sources (RES). The all India installed capacity of RES is expected to touch 175 GW by March, 2022. This comprises of 100 GW of Solar, 60 GW of Wind, 10 GW of Biomass and 5 GW of Small Hydro.

The tentative State wise break-up of renewable energy target to be achieved by March, 2022 by Eastern Region are as follows:

(ALL FIGURES IN MW)

<b>State / UTs</b>	<b>Solar Power</b>	<b>Wind Power</b>	<b>Small Hydro Power + Biomass Power</b>	<b>TOTAL</b>
Bihar	2,493	Nil	269	2,762
Jharkhand	1,995	Nil	10	2,005
Orissa	2,377	Nil	115	2,492
West Bengal	5,336	Nil	398.5	5,735
Sikkim	36	Nil	52.11	88
<b>Eastern Region</b>	<b>12,237</b>	<b>Nil</b>	<b>845</b>	<b>13,082</b>

The present installed capacity of Renewable Energy Sources in Eastern Region is 1083.64 MW.

The potential of the Renewable Energy Sources in the Eastern Region is considerably lower than that of Northern, Western & Southern Region.

The generation from the Renewable Energy Sources is characterised by variability and uncertainty. Therefore, integration of the RES into the grid is considered to be a challenging work. The aspect of variability and uncertainty associated with the Renewable Energy Sources requires implementation of the state-of-art, renewable energy forecasting and monitoring system.

Keeping this in view, Ministry of Power, Government of India, has decided to establish Renewable Energy Management Centre at Western, Northern and Southern Region as a part of Green Energy Corridor Scheme.

Further, in order to facilitate integration of the targeted 175 GW of Renewable capacity by 2022, a comprehensive transmission plan is chalked out comprising of intra-state and inter-state transmission system strengthening infrastructure as well as Control infrastructure i.e. establishment of REMC at SLDC/RLDC/NLDC level.

The REMC scheme would help the grid operator to effectively manage power system operations with economy, reliability & security. REMC would also forecast RE generation on different levels such as state/ region/ aggregated pooling station wise etc. based on information from Forecast Service Provider (FSP) as well as Weather Service Provider (WSP). REMC would also help in Renewable Generation Scheduling, real time tracking of generation of RE sources, integration with REMC SCADA & its Visualization & close coordination with respective LDC for RE generation & integration with existing SCADA. Owner of REMC will be the existing SLDCs, RLDCs & NLDC.

At present, the REMC scheme is proposed for the Renewable rich States / regions i.e. Tamil Nadu, Andhra Pradesh & Karnataka in Southern Region. Gujrat, Madhya Pradesh & Maharashtra in Western Region and Rajasthan in Northern Region co-located with SRLDC, WRLDC, NRLDC & NLDC. **No REMC has been decided yet for Eastern Region & North Eastern Region.** The Scheme is proposed to be financed from 100 % Gross Budgetary Support. No financial component / support is involved from the State Govts. / State Discoms.

PGCIL, the CTU will be implementing the scheme and will hand over the REMC to respective states / POSOCO upon commissioning.

To address the issues of RE power integration, commissioning of REMC is a necessary step. GRIDCO is proposing REMC under the 'Green Energy Corridor scheme' for Eastern Region States (to be established in ER state LDCs & at ERLDC).

In the 150<sup>th</sup> OCC Meeting members felt that REMC is required to be established in Eastern Region also.

*In 39<sup>th</sup> TCC, All the states in Eastern region felt the necessity of establishment of REMC in the eastern region for better forecasting and smooth integration of RES into the regional grid. Since West Bengal, Bihar, Odisha and Jharkhand will be having substantial addition of renewable power, REMC should be established at SLDCs of respective states and at ERLDC as well.*

*In 39<sup>th</sup> ERPC, Odisha informed that they are planning for total 3GW renewable energy capacity to be achieved by March 2022 wherein Solar Power addition would be 2200 MW, Wind Power would be 150 MW and Small Hydro including Biomass would be 600 MW.*

*ERPC agreed with the TCC recommendation regarding the necessity of establishment of REMC in the states of West Bengal, Bihar, Odisha and Jharkhand and at ERLDC as well, considering substantial addition of renewable power in the Eastern Region, the necessity of better forecasting of RE power and smooth integration of RES in the Regional Grid.*

*ERPC authorised Member Secretary to take up with MoP & MNRE, GOI for implementation of the same.*

ERPC Secretariat communicated the ERPC decision to Ministry of Power and MNRE vide letter dated 19<sup>th</sup> December 2018. (Copy enclosed at Annexure-C6).

<b>ITEM NO. C7 :</b>	<b>Inclusion of Sikkim in NER Region</b>
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Ministry of Power, Govt. of India vide letter dated 31.10.2018 had desired comments of ERPC on “*whether Sikkim can be included in NER Region in place of Eastern Region, where it is currently included*” keeping **in view of the Grid Operation**.

*In 39<sup>th</sup> TCC/ERPC Meeting the following observations were made:*

- i. Sikkim is directly not connected electrically with the North Eastern Region. It is connected geographically and electrically with ER only.*
- ii. Power generated in the Sikkim are exported to Eastern and other regions of the country.(not to NE region)*
- iii. Surplus power available in Sikkim are utilised by ER, SR, NR, WR.*
- iv. Any disturbance originating in Sikkim system will be automatically directly transmitted to ER first and as such ER is susceptible to be affected due to this disturbances. For this regular protection coordination is required to be maintained between Sikkim and rest of the ER for operational purpose.*
- v. Inclusion of Sikkim in NER would have financial implication for transaction of power between ISGS of ER and Sikkim as well as between the Sikkim ISGSs and the rest of the beneficiaries of ER. Further, the allocation of ISGS power of ER allotted to Sikkim and the ISGS power from the station located in Sikkim need to be relooked at. This will create considerable complexity.*

*ERPC unanimously decided that, taking into consideration the reliability and security of the Eastern Regional grid and the interest of Sikkim for evacuation of surplus power, Sikkim should continue to remain as an integral part of the Eastern Regional Grid.*

*In the ERPC Meeting, Sikkim also favoured to remain as a part of the Eastern Grid.*

*ERPC authorised Member Secretary to convey the views of the ERPC forum to Ministry of Power, Government of India.*

ERPC Secretariat communicated the ERPC decision to Ministry of Power vide letter no. ERPC/COM-I/Corres/2018-19/6637-41 dated 12<sup>th</sup> December 2018. (Copy enclosed at Annexure-C7).

<b>ITEM NO. C8 :</b>	<b>OPERATIONALIZING BLACK START FACILITY AT PURULIA PUMP STORAGE PROJECT (PPSP) OF WBSEDCL</b>
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The issue was discussed in last several OCC meetings. However, till date, no progress has been achieved for operationalising the black-start capability. As the orders passed by honorable CERC and APTEL for operationalization of black start facility at PPSP is already in force, under this condition, only two options are available before WBSEDCL: either to perform mock black start test or to obtain an exemption from CERC/APTEL.

The ER grid is already deprived of the reliability benefits that could have been made available by PPSP.

In 38<sup>th</sup> TCC/ERPC meeting WBSEDCL/WBSETCL informed that they were taking necessary steps regarding the study. They would take expeditious steps depending on the outcome of the study.

WBSEDCL please share the study and explain in detail the actions taken by them during the last two years for operationalizing the black-start facility at PPSP.

*In 39<sup>th</sup> TCC Meeting, it was informed by West Bengal that the necessary study results are not yet received from OEM. However, a study group is being constituted by WEST BENGAL for carrying out the study for operationalisation of Black Start at PPSP. On request from West Bengal in the meeting, ERPC Secretariat and ERLDC agreed to be associated with the study group.*

<b>ITEM NO. C9 :</b>	<b>STATUS OF THIRD PARTY PROTECTION AUDIT</b>
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The compliance status of 1<sup>st</sup> Third Party Protection Audit observations is as follows:

<b>Name of Constituents</b>	<b>Total Observations</b>	<b>Complied</b>	<b>% of Compliance</b>
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).



<b>ITEM NO. C10 :</b>	<b>Third Party Protection Audit in Sikkim for 20 nos. 132 / 66 kV and 66 /11 kV Substations during March / April, 2019</b>
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After persuasions with ENPD, Govt. of Sikkim there are 20 nos. substations (132 / 66 kV and 66 /11 kV) of ENPD, Govt. of Sikkim requiring 3<sup>rd</sup> Party Protection Audit by ERPC team to be carried out for the purpose of PSDF funding. Out of the 20 nos. substations, only 08 nos. substations located in west & south Sikkim has been finalised for Protection Audit by ERPC team during 12/03/2019 to 16/03/2019 as decided in the 76<sup>th</sup> Protection Sub-Committee Meeting held on 14.02.2019. The remaining substations in Sikkim has been proposed to be completed during March / April, 2019.

<b>ITEM NO. C11 :</b>	<b>REFUND OF STOA WITHDRAWAL POC CHARGES TO DICs PAID BY EMBEDDED CUSTOMERS TO PGCIL TOWARDS THEIR DRAWL IN STOA</b>
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As per the 3<sup>rd</sup> proviso of regulation 11.9 of sharing regulation 2010,

*“the injection PoC charge/Withdrawal PoC charges for short term open access given to a DIC shall be offset against the corresponding injection PoC charges or withdrawal PoC charges to be paid by the DICs for approved injection/Approved withdrawal corresponding to net withdrawal (load minus own injection) considered in base case.”*

and the 4<sup>th</sup> proviso of regulation 11.9 of sharing regulation 2010, states that

*“For withdrawal DIC, this adjustment is given only for STOA transaction by DIC and not applicable to other intra-state entity embedded in state and engages in STOA”*

Gridco is taking up matter with PGCIL with respect to adjustment is given only for STOA transaction by directly availed by itself for one to one correspondence. Regarding the short term drawls by intra-state entity embedded in state, it is of the same nature i.e., such STOA transaction by intra-state entity embedded in state is also captured/accounted for while determining the POC charge calculation of the state /DICs for the respective quarters. Surprisingly there is no provision in the extant regulation for adjustment of total STOA charges availed by intra-state embedded entities in the bill #1, the reason being cited by NLDC is the difficulty & complexity involved in calculation keeping in view the no of entities embedded in DIC. Gridco submits that the calculation modalities may be difficult but not impossible.

Hence, in absence of any such modality, for the same drawl quantum, entities are doubly charged which violated the purpose of 3<sup>rd</sup> amendment regulation 11.9 as existing returns do not have to one to one correspondence since these transactions are paid back to these DICs in proportion to POC charges. Moreover, since such scenario is prevalent in most of the DICs, necessary modalities may be prescribed at ERPC level in absence of regulations towards such adjustment.

The PoC charges of Odisha amounts to ₹ 38.46 Cr per month in 2018-19 in Q1, which has gone up to ₹ 56.26 Cr per month in 2018-19 in Q2. Although the YTC has increased and the total LTA of all the DICs has been decreased due to relinquishment of LTA by some DICs, the major impact on Odisha is due to high STOA drawl of M/s. Vedanta Ltd. in 2018-19 Q2. Ultimately, the consumers of the state shall suffer due to such differential PoC charges which is attributable due to drawl of an embedded Entity like M/S. Vedanta.

In 38<sup>th</sup> CCM, after detailed deliberation the committee advised GRIDCO to prepare a resolution for considering the refund of STOA withdrawal charges to DICs (i.e. GRIDCO), paid by embedded customers of GRIDCO to PGCIL. The same would be placed before forthcoming TCC and ERPC for discussion and further course of action.

In 39<sup>th</sup> TCC Meeting, GRIDCO gave a detailed presentation highlighting the issue relating to non-refund of STOA charges corresponding to the state embedded utility. After detailed deliberation, TCC felt that the issue raised by the GRIDCO has a merit and needs to be addressed.

All the utilities of the Eastern Region also supported the views of GRIDCO.

It was decided that on behalf of the Eastern Region constituents this issue would be placed by ERPC Secretariat before the PoC Review Committee constituted by CERC. The necessary inputs with details illustration would be prepared by GRIDCO and submitted to ERPC Secretariat.

In order to develop greater clarity regarding PoC charges all the utilities of ER requested that a practical session for computation of the PoC charges for any quarter should be organized in coordination with CERC and NLDC preferably in Kolkata.

TCC authorized MS ERPC to take up this issue with NLDC and CERC.

Further it was requested to organise a workshop regarding the computation methodology adopted by Powergrid in the bill #4 of the PoC. Powergrid should demonstrate the methodology adopted for arriving the charges shown against each of the utilities of ER in bill #4 in a particular month. This will help the utilities to develop a broad and better understanding and will help them to process the bill expeditiously.

In 39<sup>th</sup> ERPC Meeting, ERPC authorised Member Secretary to take up the issue with PoC Review Committee constituted by CERC. Necessary draft proposal for the above shall be prepared by GRIDCO and submitted to Member Secretary.

*In line with 39<sup>th</sup> TCC/ERPC decision, ERPC Secretariat had organised the following workshops:*

- 1. A workshop on “Calculation of Point of Connection (PoC) charges bills” on 29<sup>th</sup> January 2019 wherein Powergrid gave a detailed presentation on billing of PoC Charges especially bill #3 & 4.*
- 2. A practical session on “Computation of PoC Charges for a quarter” on 30<sup>th</sup> January 2019 wherein NLDC gave a detailed presentation and explained queries of ER Constituents.*

*ERPC Secretariat had communicated the issues of GRIDCO to CERC vide letter dated 28<sup>th</sup> December 2018 (copy enclosed at Annexure-C11).*

<b>ITEM NO. C12 :</b>	<b>PAYMENT/RECEIPT STATUS FROM VARIOUS POOL ACCOUNTS IN ER</b>
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### **1) DSM Account Mismatch between ER & NR**

A huge mismatch between DSM accounts for ER-NR Link published by ERPC & NRPC has been observed since April 2018. Prior to April 2018 such mismatch was not significant. Actual Meter data of ER-NR Inter regional link, published in NRPC DSM Bill is matching with ERPC/ERLDC/NRLDC Actual SEM data. However, Schedule energy data of ER-NR Inter regional link published in NRPC DSM statement is not matching with ERPC data. It was gathered that some software related issue at NRPC is the main reason for this mismatch. DSM statement for ER-NR Link prepared by ERPC secretariat is correct.

Present statement of ER-NR Inter regional DSM Bill issued by NRPC & ERPC is given in **Annexure-C12.1** for reference. ERLDC had taken up the issue with NRPC through NRLDC for sorting out the issue and for the revision of respective accounts prior to 03.09.2018. However so far revision for period up to 01.07.2018 is done by NRPC and still revision of account for 2 more months are pending. Such huge mismatch in two DSM account is causing problem in settlement of DSM as well RRAS account. The current principal outstanding Deviation receivable by ER Pool from NR Pool for ER-NR is **₹ 330 Cr.**

*In 39<sup>th</sup> CCM, ERLDC informed that NRPC has revised the Deviation Bill for ER-NR up to 1st July 2018. Remaining Period of Revision is pending to be done at NRPC end.*

### **2) Non-payment of Deviation Charges by IBEUL**

IBEUL is not paying Deviation charges in ER DSM Pool since 12.04.2017 (almost 2 years) and present outstanding amount payable by M/s IBEUL towards principal deviation charges is ₹ 112.50429 Lac considering bill up to 20.01.2019 and ₹ 21.35362 Lac against the delayed payment interest of deviation charges till 31.01.19. 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. Petition was heard for admission on 13.12.18 and next hearing is due on 28.02.2019.

*In 39<sup>th</sup> CCM, IBEUL representative was not present in the meeting. ERLDC informed that Petition in CERC against IBEUL has been filed and it will be heard on 27.02.19.*

### **3) 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 06.02.2019 (considering bill up to 20.01.2019) is indicated in **Annexure-C12.3**. So far **₹ 227.3 Cr** have been settled under RRAS in ER during FY 2018-19.

### **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-C12.4**.

### **5) STATUS OF PSDF**

An amount of **₹ 6.86 Cr** from Reactive account have been transferred to PSDF after 38th Commercial sub-committee meeting held on 12.10.18. With this the total amount of **₹ 956.6 Cr**

has been transferred to PSDF so far. No amount from Deviation pool has been transferred to PSDF A/c since 29.06.16 and surplus amount in deviation pool is being utilized for settlement of RRAS & FRAS Bill. The break up details of fund transferred to PSDF (till 06.02.19) is enclosed in **Annexure-C12.5**.

<b>ITEM NO. C13 :</b>	<b>RECONCILIATION OF COMMERCIAL ACCOUNTS</b>
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### **1) RECONCILIATION OF DEVIATION ACCOUNTS.**

At the end of 3rd quarter of 2018-19, the reconciliation statement (Period: 01.10.18 to 31.12.18) has been issued by ERLDC on 09.01.19 and statements have been sent to the respective constituents. The same has also been uploaded at ERLDC website at <https://erlhc.in/market-operation/dsmreconciliation/>. The constituents were requested to verify /check the same & comments, if any, on the same were to be reported to ERLDC by 31.01.2019. The status of reconciliation is enclosed in **Annexure-C13.1**.

IBEUL has not reconciled the statement for last 2 years.

OPGC has not signed reconciliation statement for last 2 quarter.

BSPHCL, JUVNL, DVC, WBSETCL, SIKKIM, NHPC, KBUNL, GMR, JLHEP, DICKCHU, TASHIDING, Powergrid (ER-I & II) & NPGC have not signed reconciliation statement for 3rd quarter of 2018-19.

*In 39<sup>th</sup> CCM, ERLDC informed that BSPHCL, DVC, KBUNL, Powergrid ER-II have reconciled the statement.*

### **2) RECONCILIATION OF REACTIVE ACCOUNT**

At the end of 3rd quarter of 2018-19, the reconciliation statement (Period: 01.10.18 to 31.12.18) has been issued by ERLDC on 09.01.19 and statements have been sent to the respective constituents. The same has also been uploaded at ERLDC website at <https://erlhc.in/market-operation/reactivereconciliation/> Constituents were requested to verify /check the same & comments if any on the same were to be reported to ERLDC.

SIKKIM & JUVNL have not reconciled the Account since last 2 quarters.

BSPHCL, DVC, GRIDCO & WBSETCL have not reconciled the account of last one quarter.

*In 39<sup>th</sup> CCM, ERLDC informed that GRIDCO has reconciled the statement. BSPHCL, DVC & WBSETCL representatives were not present in the meeting.*

### **3) RECONCILIATION OF RRAS ACCOUNT**

At the end of 3rd quarter of 2018-19, the reconciliation statement (Period: 01.10.18 to 31.12.18) has been issued by ERLDC on 09.01.19 and statements have been sent to the respective constituents (i.e. NTPC, KBUNL and BRBCL). The same has also been uploaded at ERLDC website at <https://erlhc.in/market-operation/rasreconciliation/> NTPC & BRBCL has reconciled the RRAS Account.

*KBUNL may please reconcile the RRAS account.*

#### **4) Reconciliation of FRAS Account.**

*At the end of 3rd quarter of 2018-19, the reconciliation statement (Period: 01.10.18 to 31.12.18) has been issued by ERLDC on 09.01.19 and statements have been sent to the respective constituents (i.e. NHPC). The same has also been uploaded at ERLDC website at <https://erldc.in/market-operation/fras-reconciliation/> NHPC has not reconciled the account.*

*In 39<sup>th</sup> CCM, NHPC agreed to reconcile the statement shortly.*

#### **5) RECONCILIATION FOR STOA PAYMENTS MADE TO SLDC / STU:**

The reconciliation statements of STOA payments for the period of Apr'18 to Dec'18 have been sent to the DVC, OPTCL and WBSETCL for checking at their end and confirmation from their side. WBSETCL and OPTCL are yet to confirm for the period from Jul'18 to Sep-18 and DVC is yet to confirm for the period from Oct'18 to Dec'18

*In 39<sup>th</sup> CCM, ERLDC has informed that DVC & OPTCL has reconciled the statement for remaining period respectively.*

#### **6) RECONCILIATION FOR PAYMENTS RECEIVED FROM STOA APPLICANTS:**

The reconciliation statements of STOA payments for the period from Apr'18 to Jun'18 have been sent to CESC, JITPL, JUVNL and WBSEDCL for checking at their end and confirmation.

CESC has confirmed for the above period. WBSEDCL is yet to confirm for the period Jul'18 to Dec'18. JITPL is yet to confirm for the period Jul'18 to Sep'18. JBVNL has not confirmed for the entire period.

As per clause 15.1 of CERC approved STOA bilateral procedure, since the confirmations have not been received within 2 weeks from the date of issuance of the letters, the statement issued by ERLDC have been deemed to be reconciled. The details are attached in the **Annexure-C13.5**.

Since there is a serious audit objection on non-signing of DSM, Congestion and STOA reconciliation statement it is once again requested that all regional pool members may check and sign the statement sent by ERLDC.

*In 39<sup>th</sup> CCM, ERLDC informed that JBVNL has reconciled. WBSEDCL representative was not present in the meeting. It was decided that ERPC Secretariat would write a letter to concerned utilities to reconcile the statements at the earliest.*

#### **7) 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 6<sup>th</sup> 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 favor 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 2018-19 by ER constituents is given in **Annexure – C13.7**. Letters to this effect has been issued by ERLDC to the defaulting entities.

IBEUL & Tashiding (SHIGA) have to open fresh LC but they have not opened the LC till date.

BSPHCL, JUVNL, SIKKIM & APNRL have not been renewed after expiry of their LC. In 39<sup>th</sup> TCC/ERPC Meeting, JUVNL had assured to open the LC with requisite amount shortly. Rest of the constituents who have to open the LC have opened LC.

*In 39<sup>th</sup> CCM, ERLDC informed that the letters had been sent to the defaulting entities to open the required LC but there was no response from their end.*

*BSPHCL, SIKKIM, IBEUL & TASHIDING representative were not available in the meeting.*

*It was decided that ERPC Secretariat would write a letter to concerned utilities to open the requisite LCs at the earliest.*

<b>ITEM NO. C14 :</b>	<b>REPLACEMENT OF GPRS COMMUNICATION WITH OPTICAL FIBER FOR AMR</b>
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In ER, 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 03 locations (Malda-PG, 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. The above matter was last discussed in 145<sup>th</sup> OCC meeting also.

*In 38<sup>th</sup> CCM, POWERGRID informed that the replacement of GPRS communication for the remaining 38 locations would be completed by December 2018.*

*The committee also advised to other utilities to explore possibilities of using their own optical fiber network, wherever it is available, for communicating with AMR for smooth functioning of AMR.*

*In 39<sup>th</sup> CCM, Powergrid informed that 32 locations out of 38 have been completed and remaining 6 locations would be completed by April 2019.*

*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.*

<b>ITEM NO. C15 :</b>	<b>PROCUREMENT OF NEW SEMS</b>
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In 30<sup>th</sup> ERPC meeting procurement of 965 no of SEM's and 110 nos of Laptop/DCD (in 111<sup>th</sup> 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 35<sup>th</sup> CCM held at ERPC on 02.08.17, PGCIL informed that in 1<sup>st</sup> phase, 300 meters and 40 laptops with software had been supplied by M/s Genus so far.

In 145<sup>th</sup> OCC, PGCIL informed that meter of 2<sup>nd</sup> lot has been supplied. Time drifted meters/Elster meters are being replaced by Genus meters phase wise.

*In 38<sup>th</sup> CCM, POWERGRID informed that 364 nos. (approx.) of SEMs would be delivered in 3rd phase and the inspection of the same is scheduled by December, 2018.*

*In 39<sup>th</sup> CCM, Powergrid informed that remaining 364 nos. of meters have been delivered.*

<b>ITEM NO. C16 :</b>	<b>ISSUES RELATED TO ASSOCIATED / DOWNSTREAM SYSTEMS</b>
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## WEST BENGAL

- 2 nos. 220 KV line bays at Subhashgram (PG) s/s:** Bays are ready and idle charged under ERSS-VIII due to non readiness of 220 KV D/C Subhashgram – Baruipur Tr. line and associated bays at Baruipur.
- 6 nos. 220 KV bays at Rajarhat GIS substation under ERSS-V** - 02 no. bays of 220 KV will be utilized through LILO of 01ckt of 220 KV Jeerat - New Town Tr. line (WBSETCL) at Rajarhat. Construction activity of 220 kV line bays was completed. Due to public agitation, work was stopped from January' 2017 and during the agitation miscreants have damaged several panels, cables etc. Work for commissioning of the station has commenced from Sept 18 and expected to be completed by Dec 18.

In 154<sup>th</sup> OCC, WBSETCL updated the completion schedule of inter-connecting system as follows:

Sl. No.	Name of the transmission line	Completion schedule
<b>1.</b>	<b>2x500MVA, 400/220kV Rajarhat---</b>	
a.	Rajarhat-N. Town-3 (WBSETCL) 220 kV D/C line	The line commissioned on 1 <sup>st</sup> February 2019.
b.	Rajarhat-N. Town-2 (WBSETCL) 220 kV D/C line	ROW problem, December 2019
c.	Rajarhat- Barasat (WBSETCL) 220 kV D/C line	The line is charged from Rajathat and Jeerat. The line would be charged from Barasat end after completion of rest of

		the work by March 2020.
2	<b>Subashgram400/220kVS/s</b>	
a	Subashgram–Baruipur220kVD/cline	Sep 2019, 80% of work has been completed.

## ODISHA

- 1. 6 nos. 220 KV bays at Pandiabil GIS: 06 nos.** 220 kV bays at Pandiabil (PG) substation are ready for commissioning since July '16. Utilisation of the bay is held up due to non-readiness of 220 KV lines of OPTCL. Readiness of 220 KV Feeders by OPTCL is critical for downstream power flow from Pandiabil (PG) S/S.

In 154<sup>th</sup> OCC, OPTCL updated the completion schedule of inter-connecting system as follows:

Sl. No.	Name of the transmission line	Completion schedule
1.	400/220kV Pandiabil Grid S/s:	
a.	Pratapsasan(OPTCL)-Pandiabil(PG) 220 kV D/C line	<i>By March, 2019.</i>

## JHARKHAND

The following downstream network is being constructed by JUSNL to draw power from 220kV & 132kV level from Daltonganj (PG) :

220 kV Level :

- Daltonganj (POWERGRID) – Latehar 220 kV D/C
- Daltonganj (POWERGRID) – Garhwa 220 kV D/C

132 kV Level :

- Daltonganj (POWERGRID) – Daltonganj (JUSNL) 132 kV D/C
- Daltonganj (POWERGRID) – Chatarpur/Lesliganj 132 kV D/C

In 154<sup>th</sup> OCC, JUSNL updated the latest status as follows:

Sl. No.	Name of the transmission line	Completion schedule
<b>1.</b>	<b>Daltonganj 400/220/132kV S/s:</b>	
a.	Daltonganj(POWERGRID)–Latehar220kVD/c	By Dec, 2019.
b.	Daltonganj (POWERGRID) – Garhwa 220kV D/c	The line expected to be completed by May, 2018 but – Garhwa 220kV is expected to be completed by June 2019.
c	Daltonganj (POWERGRID) – Chatarpur/Lesliganj 132kV D/c	Tendering is in progress. Expected to be completed by October 2019
<b>2</b>	<b>Chaibasa400/220kVS/s</b>	
a	Chaibasa(POWERGRID)–Noamundi220kVD/c	Not yet started
<b>3</b>	<b>Dhanbad400/220kVS/s</b>	
a	LILLO of Govindpur–Jainamore/TTPS 220kVD/c at Dhanbad	ROW issues.Target date November 2018.

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# ANNEXURES

LIST OF PARTICIPANTS IN THE 40<sup>th</sup> ERPC MEETING

Date: 16.03.2019

Venue: The Ummed Hotel, Jodhpur

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<b>TPTCL</b>			
68.	Sanjeev Mehra	Managing Director	9250001771 sanjeev.mehra@tatapower.com
69.	A.K. Dutta	Head-Commerical	9871798566 ashis.dutta @tatapower.com
<b>Teesta Urja Ltd.</b>			
70.	D.P. Bhargava	Chief Consultant (O&M)	9958833995 dpbhargava@teestaurja.com
71.	M.S.P. Rao	ED	9818425789
72.	Yogendra Kumar	President	9910413388
<b>WBPDC</b>			
73.	Goutam Biswas	Executive Director(OS)	9073900850 gbiswas@wbpdcl.co.in
<b>WBSEDCL</b>			
74.	P. Banerjee	SE	7449300221 preetam72@gmail.com
75.	P.P. Mukherjee	CE	9433227389 ceptp.wbsedcl@gmail.com

Sl. No.	Name S/Shri	Designation	Contact Number e-mail id
<b>WBSETCL</b>			
<b>76.</b>	S. Roy	Director (Operations)	7449300221 sabya.60@yahoo.com
<b>77.</b>	P. K. Kundu	Chief Engineer SLDC	9434910030 ce.wbsldc@gmail.com
<b>78.</b>	Asit Karmakar	Chief Engineer CPD	9434910019 cpd@wbsetcl.in
<b>79.</b>	Dilip Das	Chief Engineer ,CTD	9434910028 ce.ctdwbsetcl@gmail.com
<b>Bhutan</b>			
<b>80.</b>	Karma Phuntsho	CEO,DHPC	97517944708 phuntsho_karma@hotmail.com
<b>81.</b>	Kuenga Namgay	Director(O &M), DGPC	9717693104 Knamgay2352@durkgreen.in
<b>82.</b>	Sherub	GM, BPC	97517630925 sherub@bpc.bt
<b>83.</b>	Denkar	Dy. Executive Engineer, DHPS	97517421357 denkar@moea.gov.bt
<b>84.</b>	Dawa Chhoedren	Chief Engineer, DHPS	97517974157 dchhoedren@moea.gov.in

## Power System Operation Corporation Ltd. 40<sup>th</sup> TCC Meeting



### ER Grid Performances

- Frequency Profile
- Demand / Energy met
- Generation pattern
- Transnational Exchange
- Eastern-Regional Export Profile
- Overdrawal of Odisha, DVC & WB
- Hydro generation pattern of Odisha & Tala
- Major Transmission element addition and outage status of tr. elements
- Trading in Exchange and Bilateral STOA

## Important event list

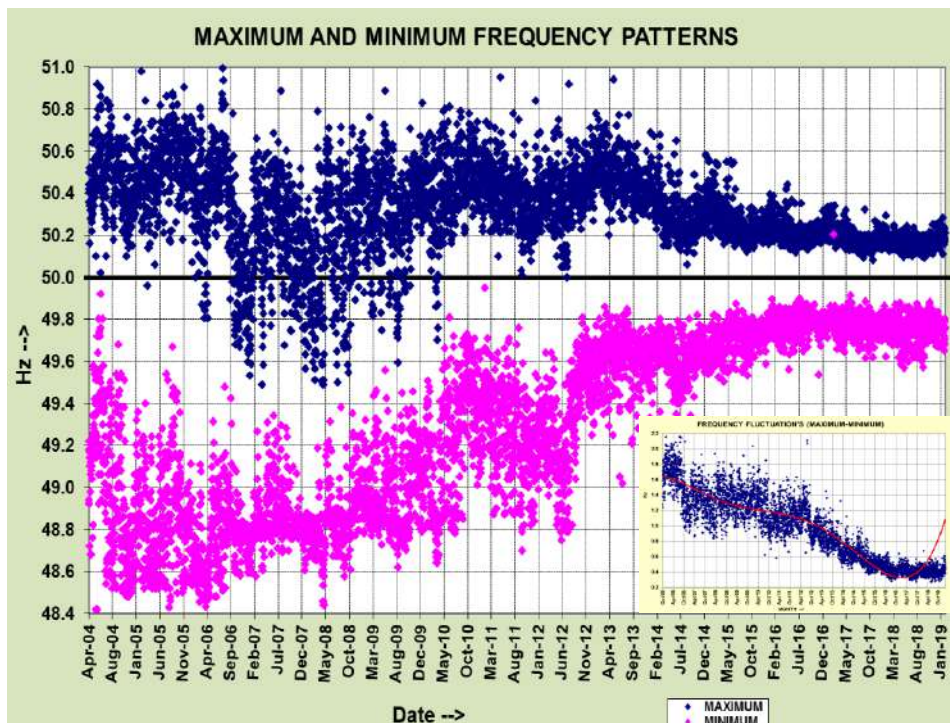
- **NTPP (BRBCL) U#3 of 250 MW** was synchronised for first time at 02:43hrs of 01/01/2019. Unit-3 completed it's 72hrs trial run from 01:30hrs of 07.02.2019 to 03:30hrs of 10/02/ 2019 and declared its DOCO wef 26/02/2019
- **NSTPP (NPGC) U#1 of 660 MW** synchronised for first time at 02:02hrs of 14/01/2019.
- **IB\_St-2 (OPGC) U#4 of 660 MW** synchronised for first time at 18:01 hrs of 23-01-2019.
- 400kV Teesta III-Kishanganj-S/C was charged at 17:07hrs of 04/01/2019.
- 400kV Rangpo-Kishanganj-S/C was charged at 16:22hrs of 11/02/2019.
- 400/220kV Rajarhat S/S charged for first time on 28-01-2019 by making LILO of 400kV Jeerat-Subhasgram-S/C. 500MVA ICT-I at Rajarhat & 220kV Jeerat-Newtown-DC was made LILO at Rajarhat on 01/02/2019.
- 400 kV Bus – I bus splitting work completed on 10/01/2019 (Now reconfigured Bus – I and Bus – III coupled through bus sectionaliser wef 20/02/2019).
- 400 kV Bus – II bus splitting work completed on 26/02/2019 (Bus sectionaliser expected to be commissioned by April first week).
- 400 kV Patna – Kisanganj – II restored with (twin moose in one section) on 16/01/2019 at 21:15 Hrs.
- 400 kV Dearabhanga – Kisanganj – II charged on 11/03/2019 and 400 kV Dearabhanga – Kisanganj – I charged on 12/03/2019.

## Frequency Profile



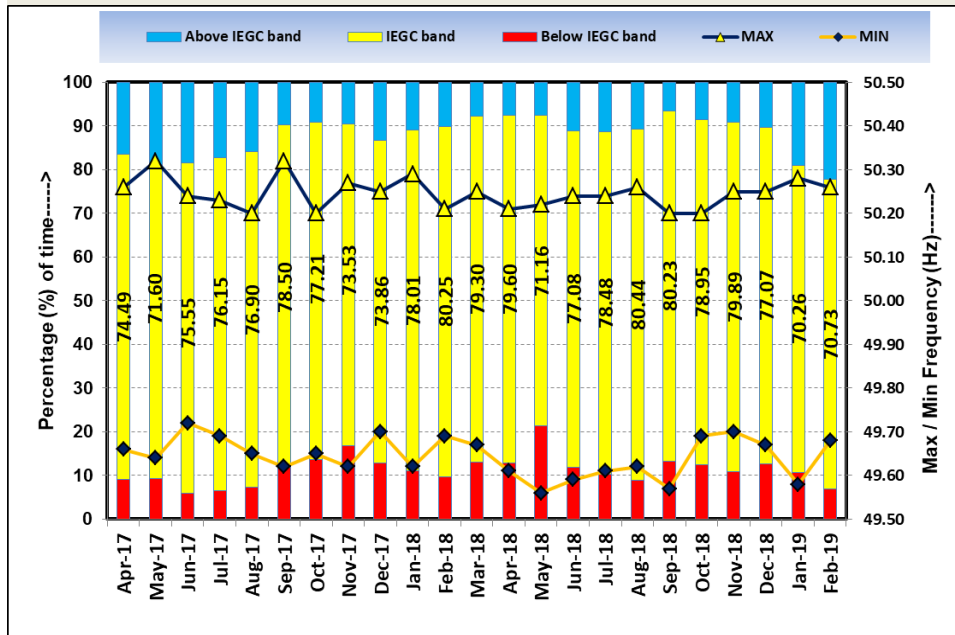
## Highlights of Frequency Profile (Apr-18 to Feb'19)

- Maximum Freq - 50.28Hz on 22/01/19
- Minimum Freq - 49.56 Hz on 26/05/18
- Average Freq:- 49.98 Hz
- FVI:- 0.045
- 76.72% of the time within IEGC Band



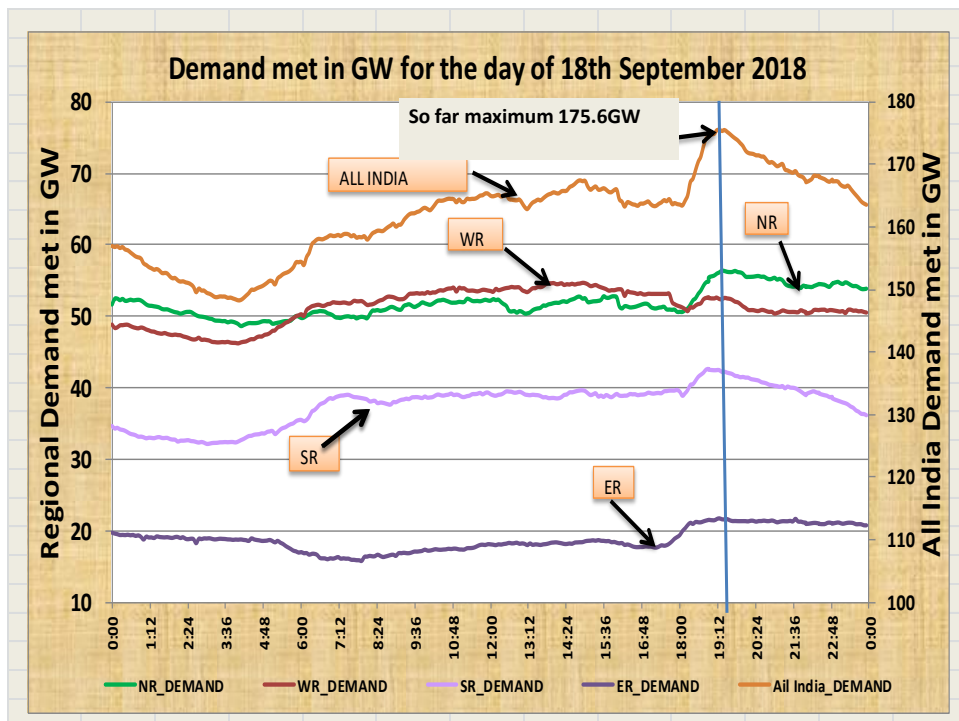
## Frequency Profile

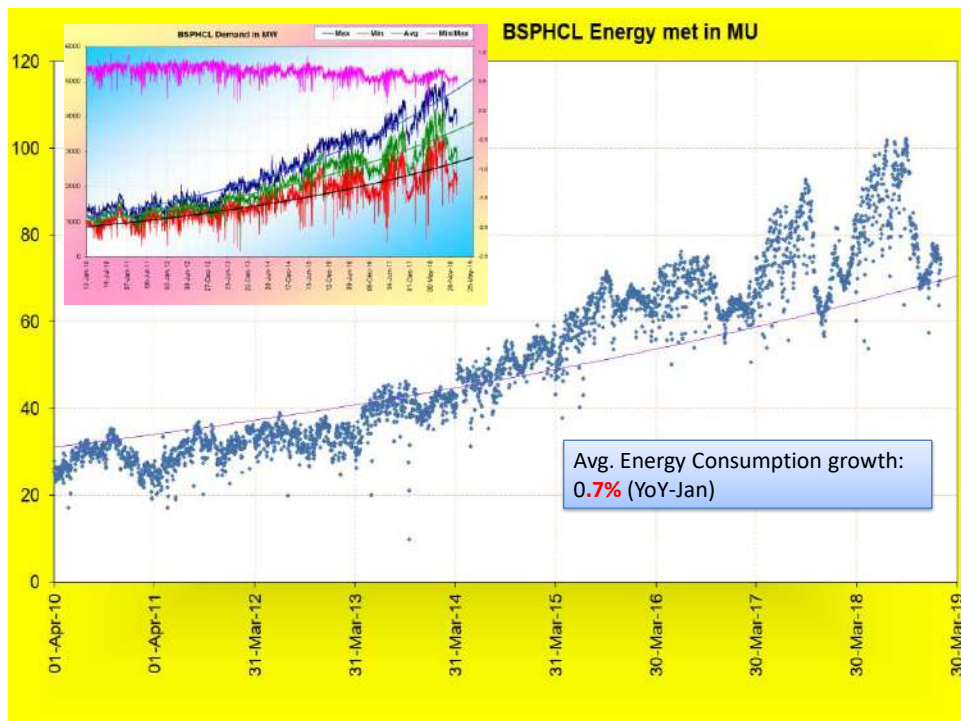
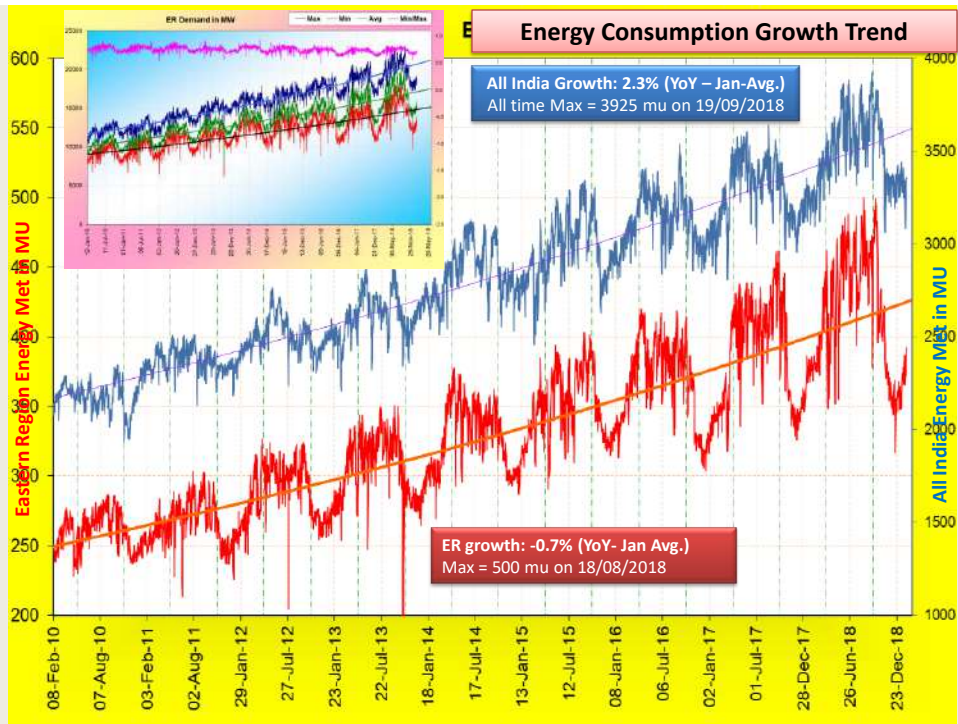
Max: 50.28 Hz; Min: 49.56 Hz; Avg: 49.98 Hz; (FY18-19)

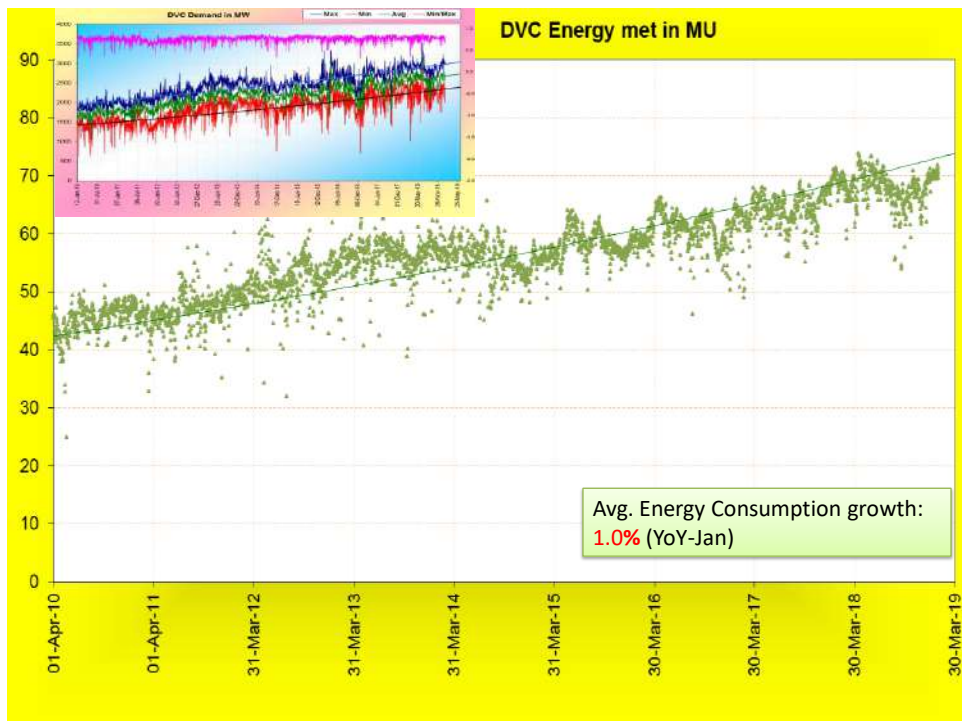
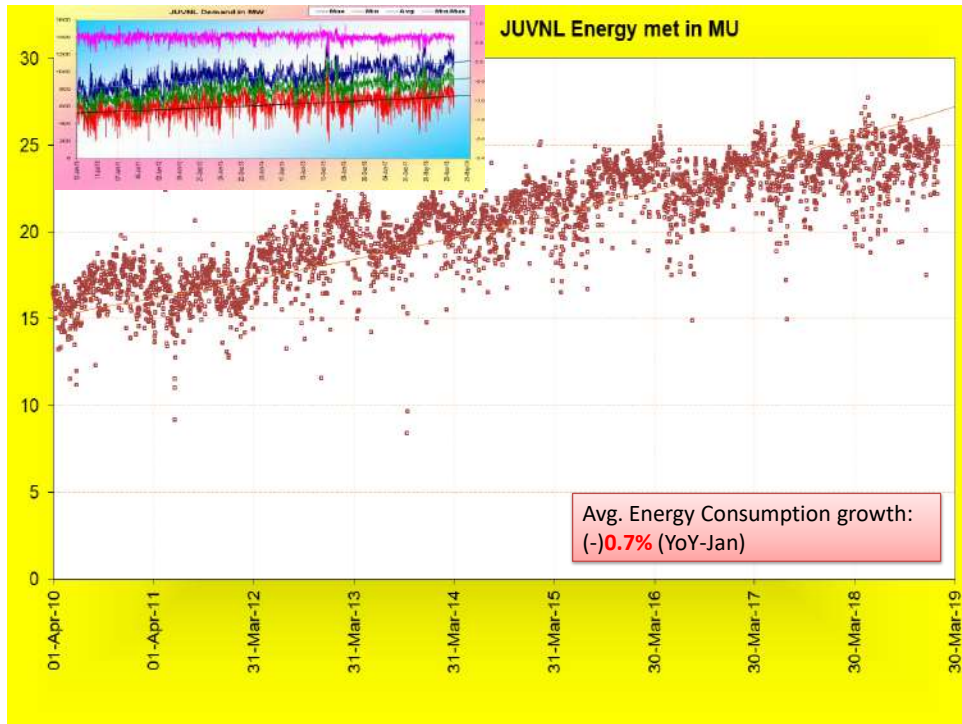


## Demand / Energy Consumption Pattern

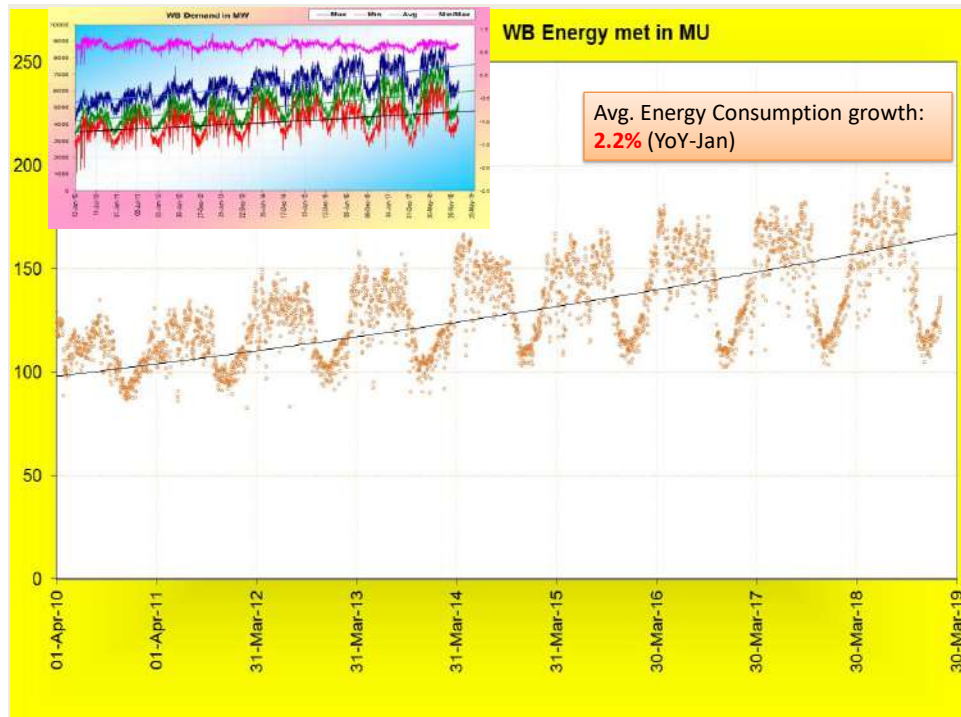
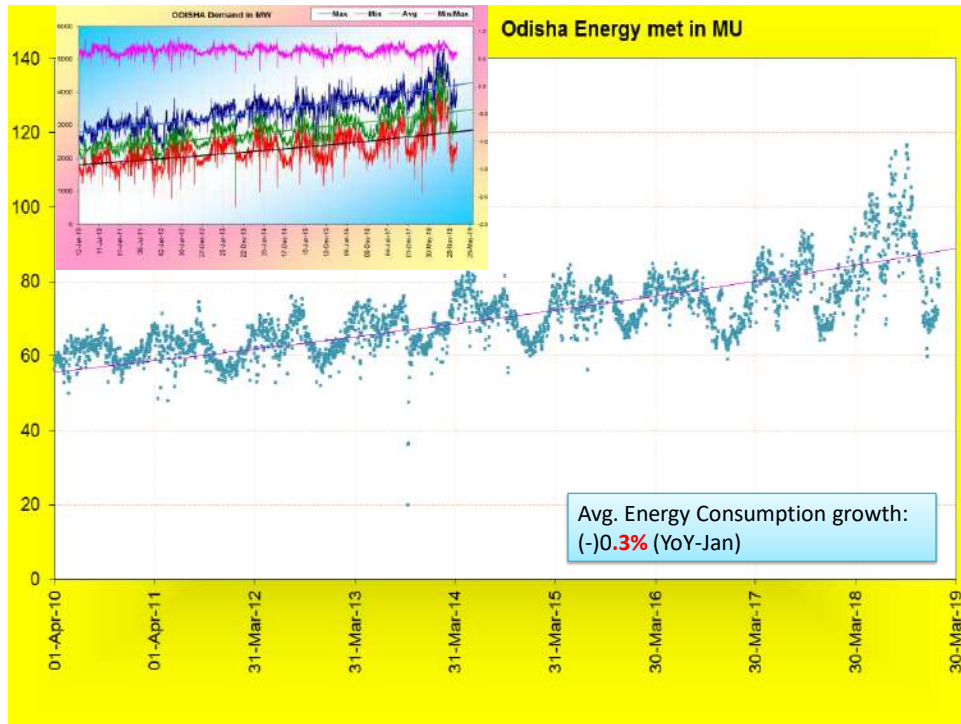
So Far Highest Demand				
Region	Energy consumption (MUs)	Date	Demand (MW)	Date
ALL INDIA	3925	19-09-18	175590	18-09-18
NR	1421	10-07-18	64797	25-08-18
WR	1293	16-10-18	58081	16-10-18
SR	1096	07-03-19	48346	04-03-19
ER	499.8	18-08-18	23030	03-10-18
NER	55	19-07-18	2953	07-07-18
Constituent	Energy consumption (MUs)	Date	Demand (MW)	Date
Bihar	104.0	02-Oct-18	5011	12-July-18
DVC	75.8	12-July-18	3536	12-July-18
Jharkhand	27.8	19-May-18	1319	19-May-18
Odisha	123.5	02-Oct-18	5558	23-Aug-18
West Bengal	192.6	05-Oct-18	8896	18-June-18
Sikkim	2.1	07-Dec-17	117	28-Oct-16
ER	499.8	18-Aug-18	23030	03-Oct-18

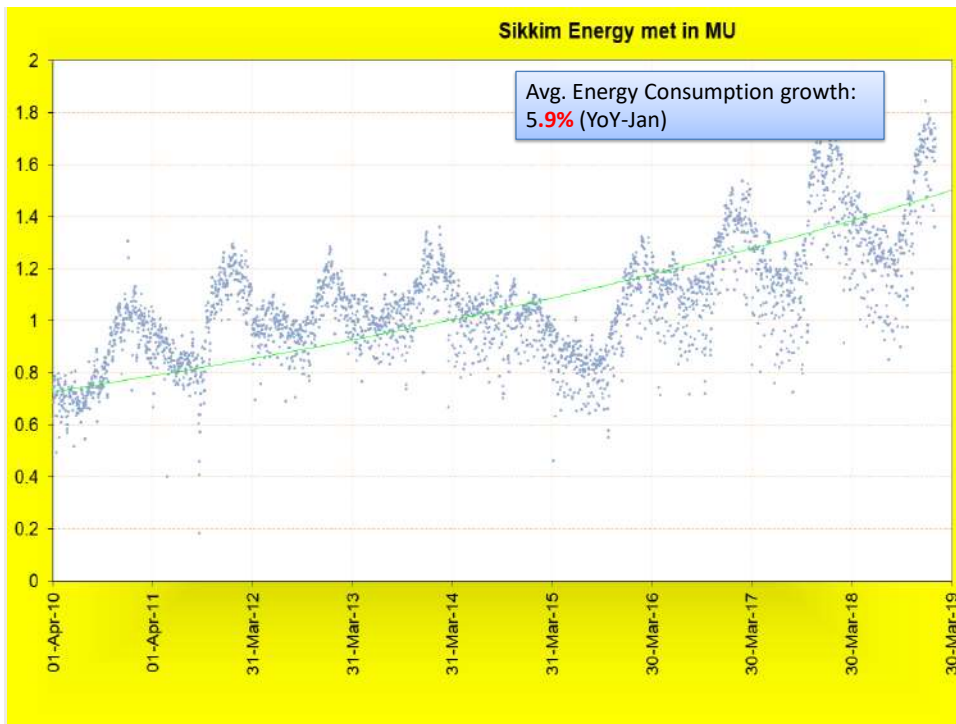




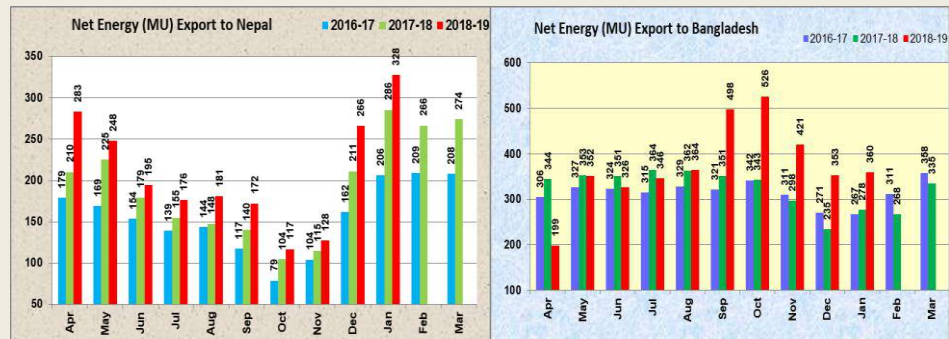
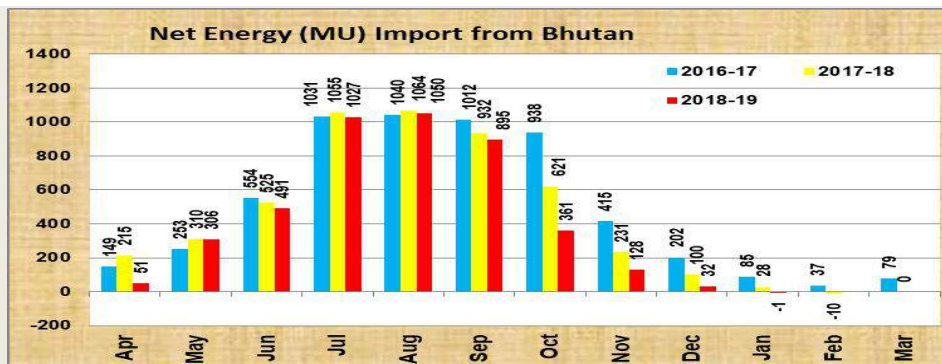
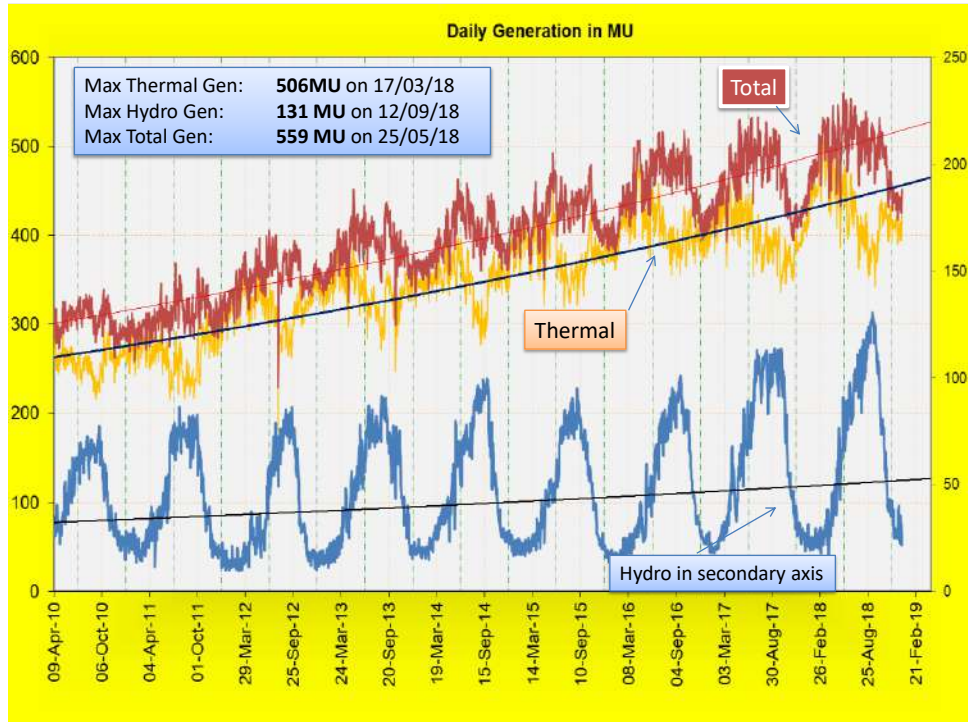






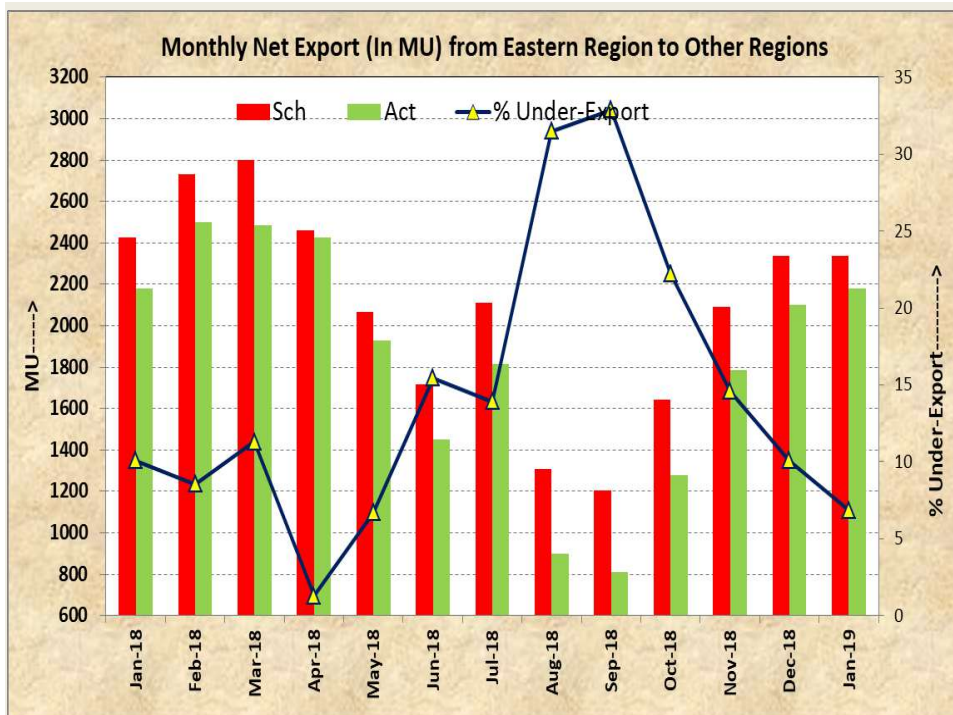


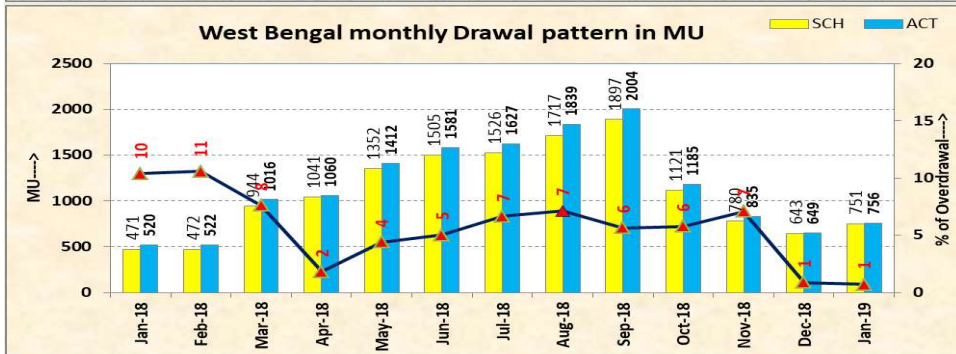
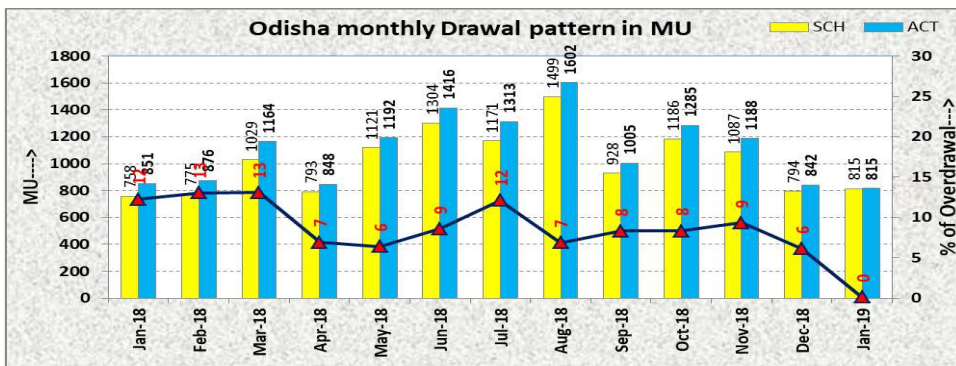
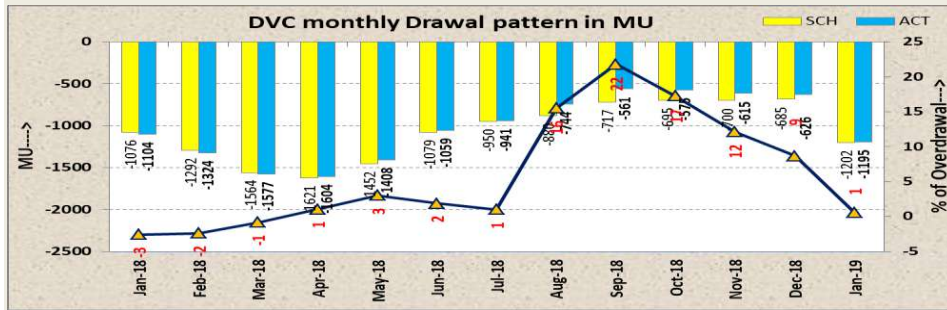
**Generation pattern**

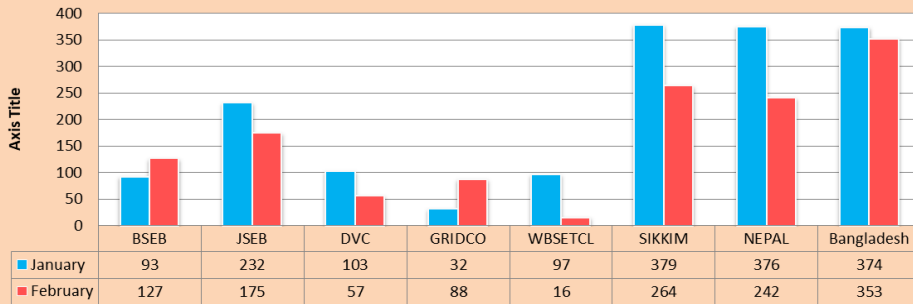
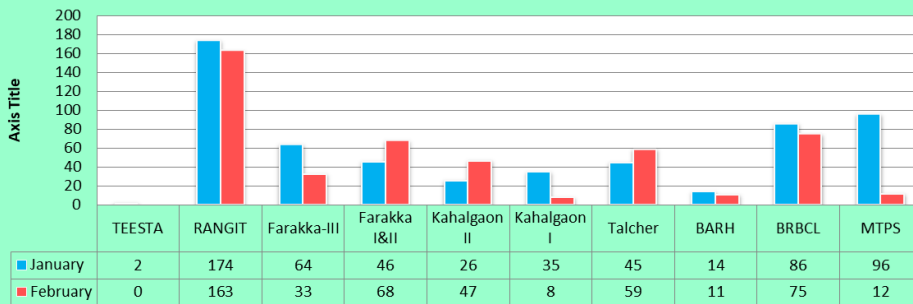
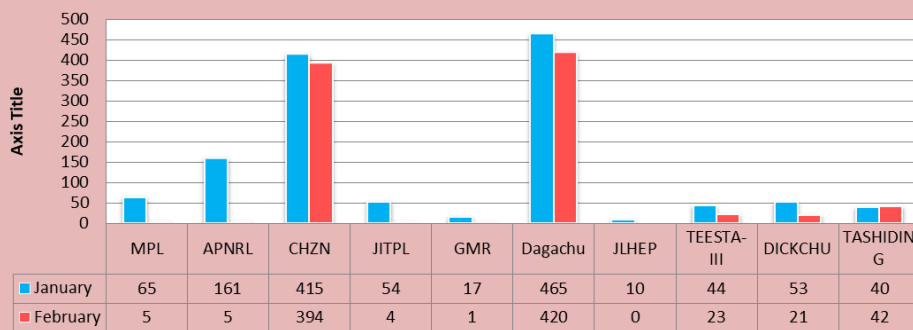




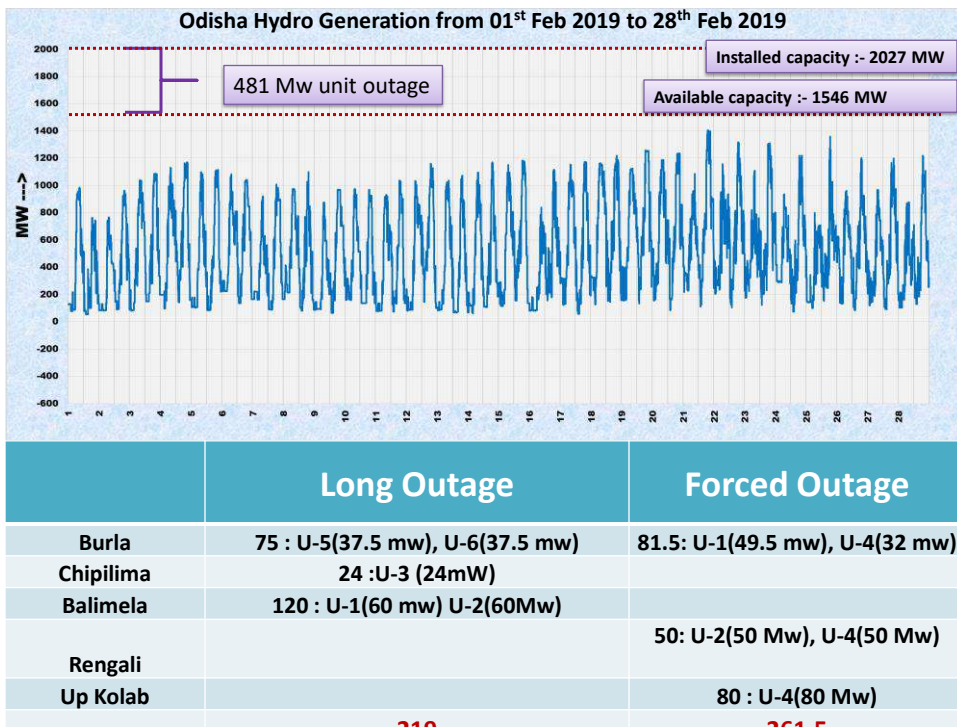
## Overdrawal of ER

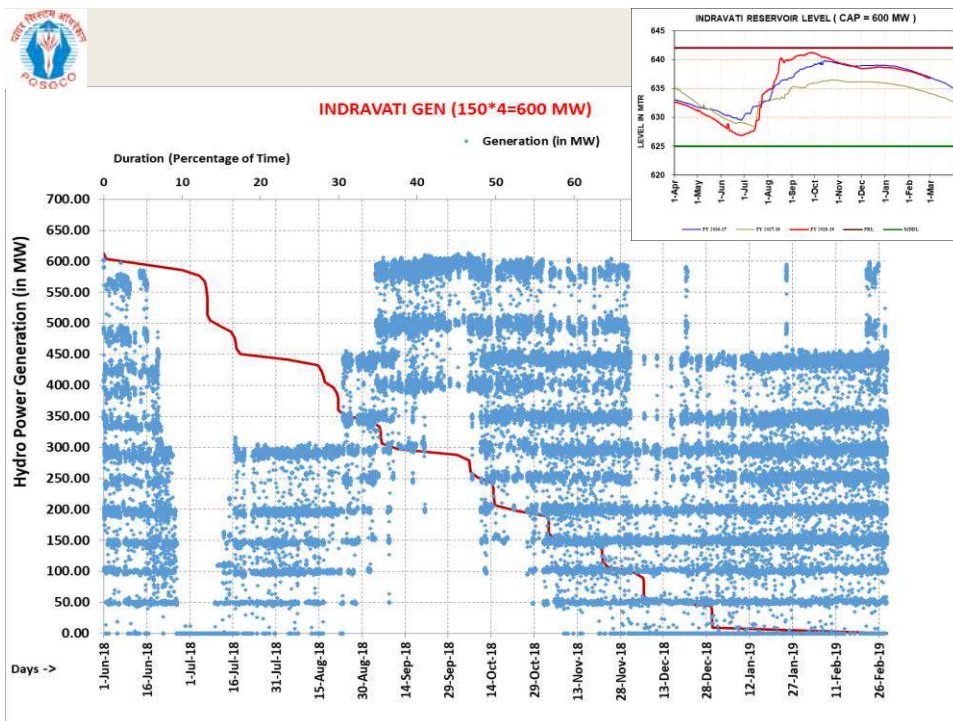
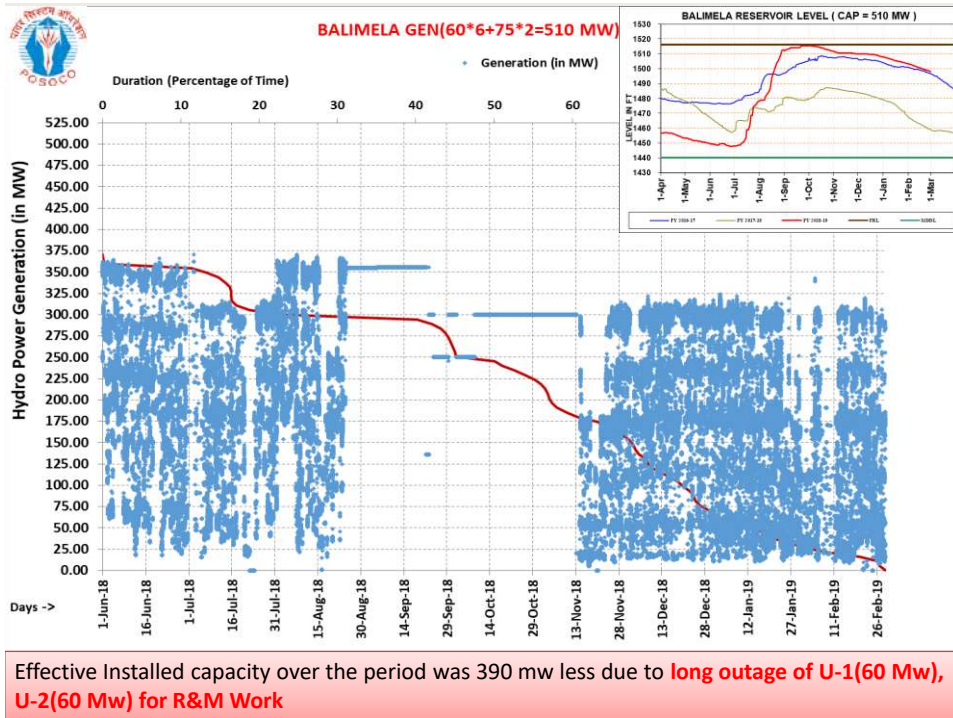




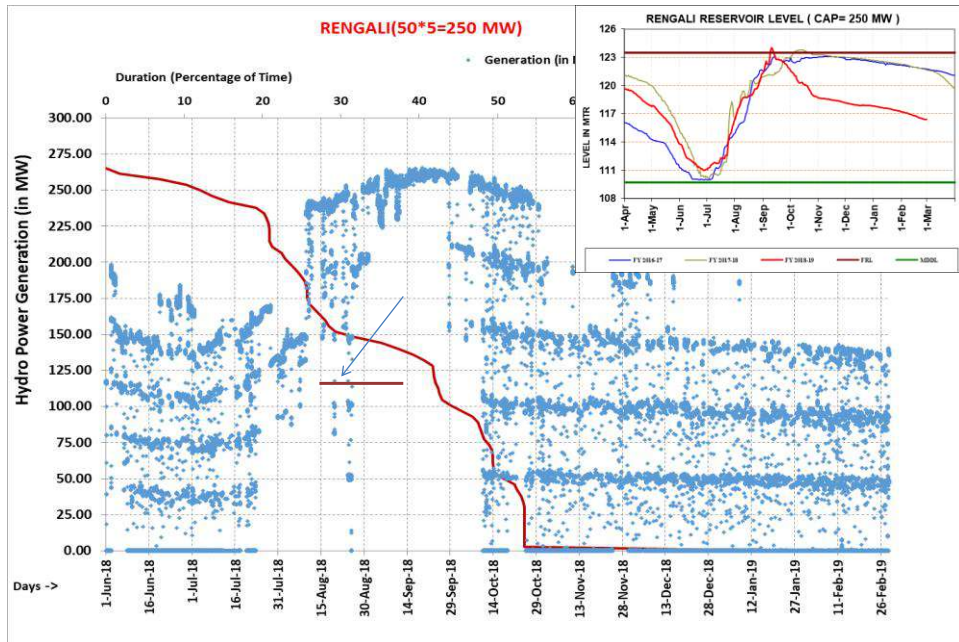
**No. of 0 crossing violations of State entity during Jan & Feb 19****No. of 0 crossing violations of ISGS during Jan & Feb 19****No. of 0 crossing violations of IPP during Jan & Feb 19**

# Hydro Generation Pattern of Odisha

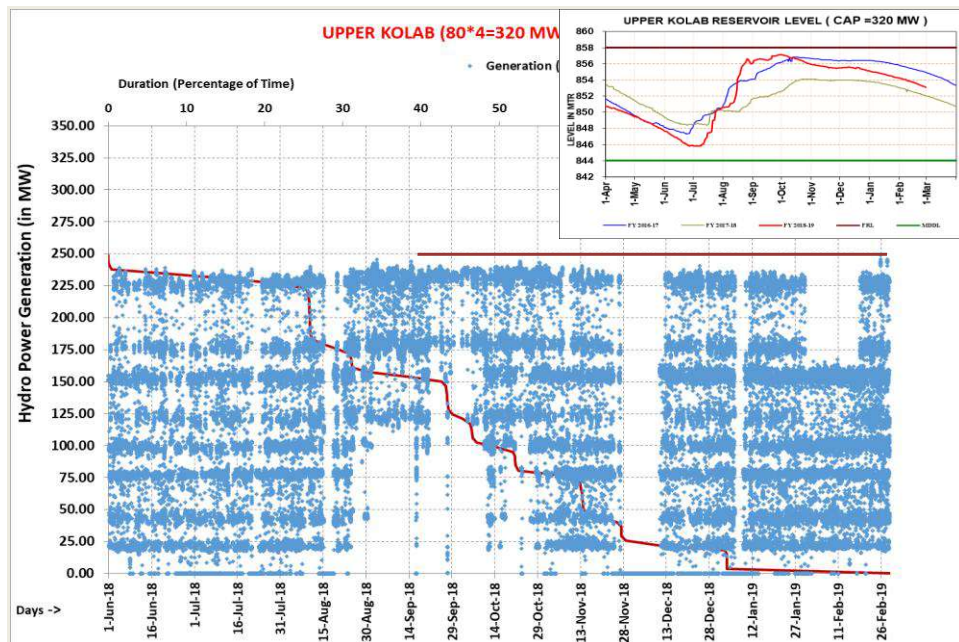








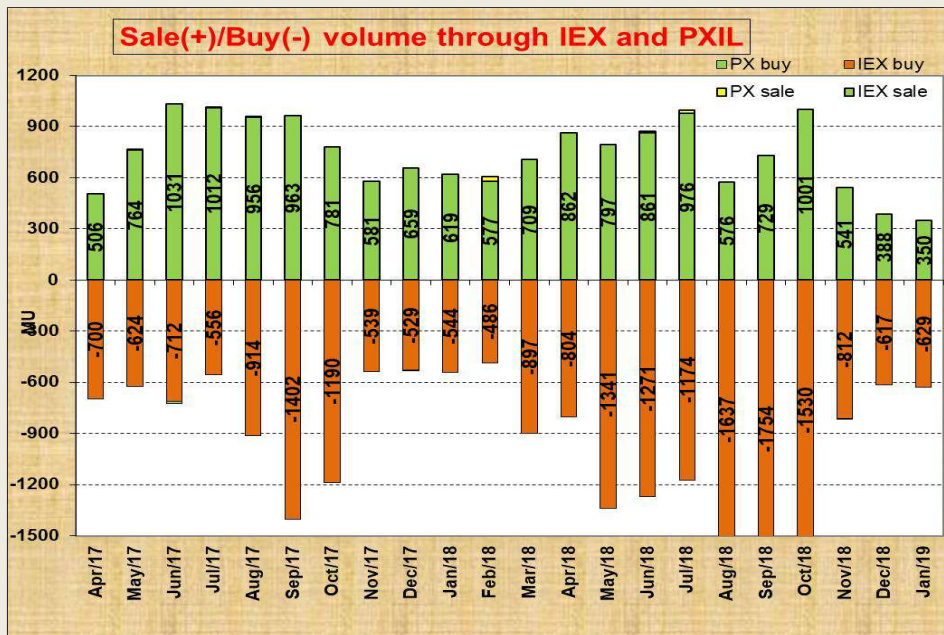
Available Installed capacity over the period was 150 MW, less due to **outage of U-2,4 (100 Mw) for capital maintenance and U-4(50 Mw)** and U-2 Replacement of old AVR with new DAVR.

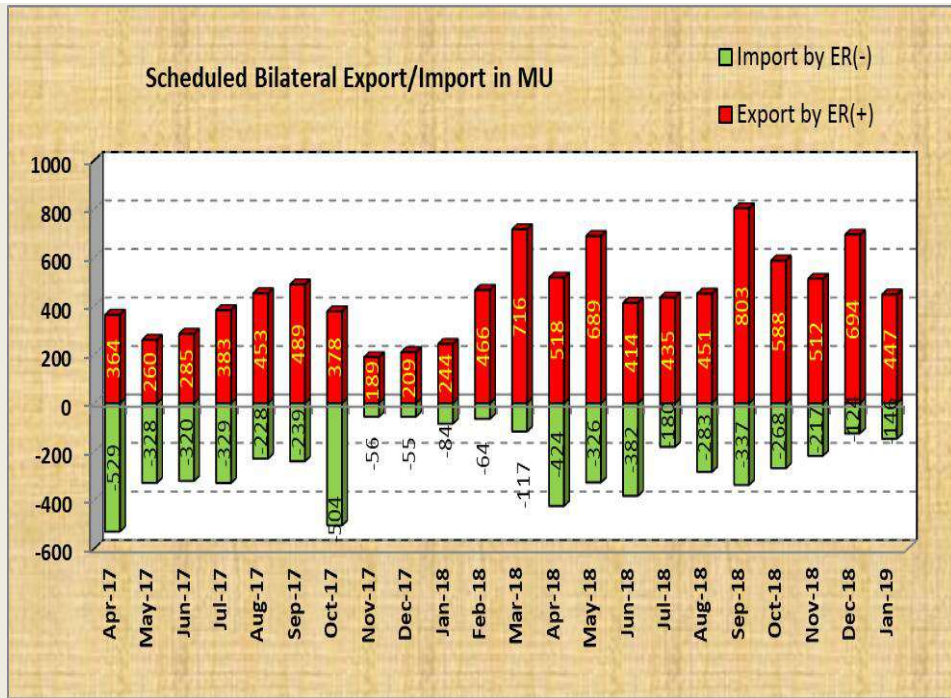


Available Installed capacity over the period was 240 MW, less due to **long outage of U-2 (80 Mw) for repair of MIV and draft tube gate Leakage**

# Trading in Exchange and Bilateral STOA

Sale(+)/Buy(-) volume in MU through IEX and PXIL



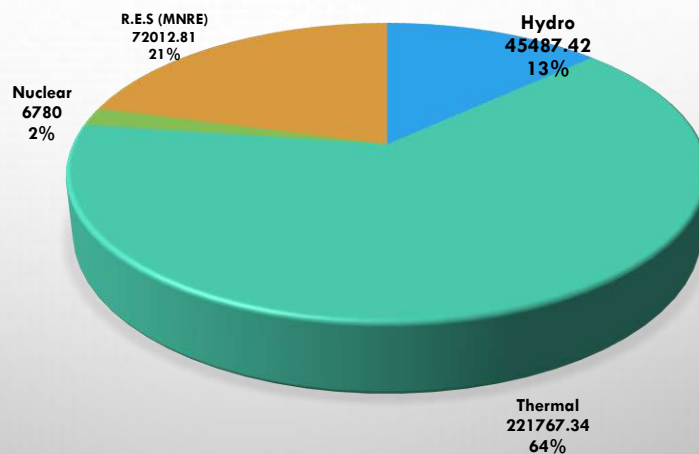




# GENERATION OPTIMIZATION

PRAVEEN GUPTA  
CHIEF ENGINEER (IRP)  
CENTRAL ELECTRICITY AUTHORITY  
16<sup>th</sup> March, 2019

## ALL-INDIA INSTALLED CAPACITY (IN MW) AS ON 31.12.2018

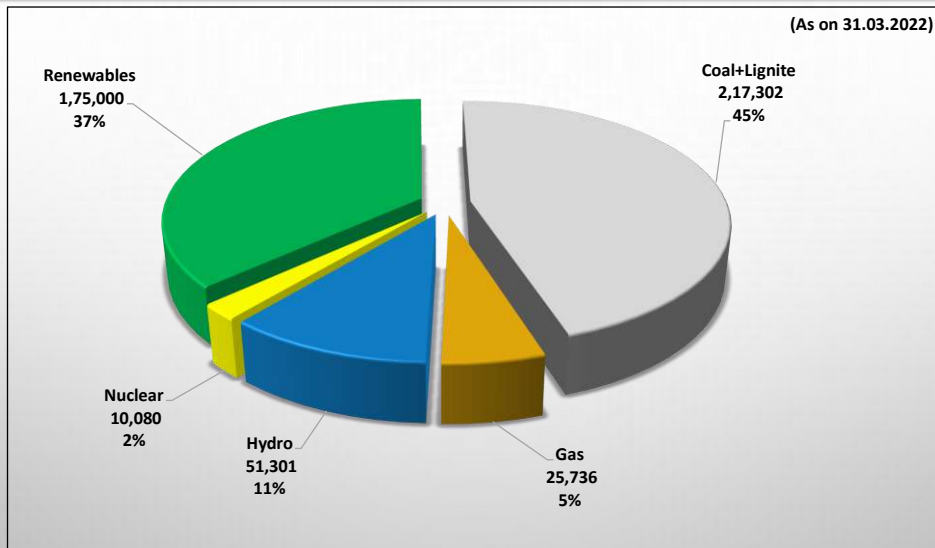


**Total 3,49,288 MW**

## PROJECTED DEMAND AS PER 19<sup>TH</sup> EPS

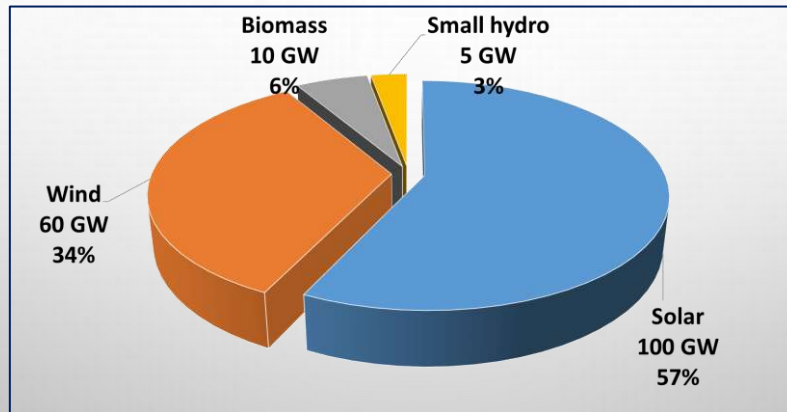
Year	Electrical Energy Requirement (BU) Ex Bus	Peak Electricity Demand (GW)
2021-22	1566	225.751

## PROJECTED ALL INDIA INSTALLED CAPACITY ( MARCH 2022 NEP)



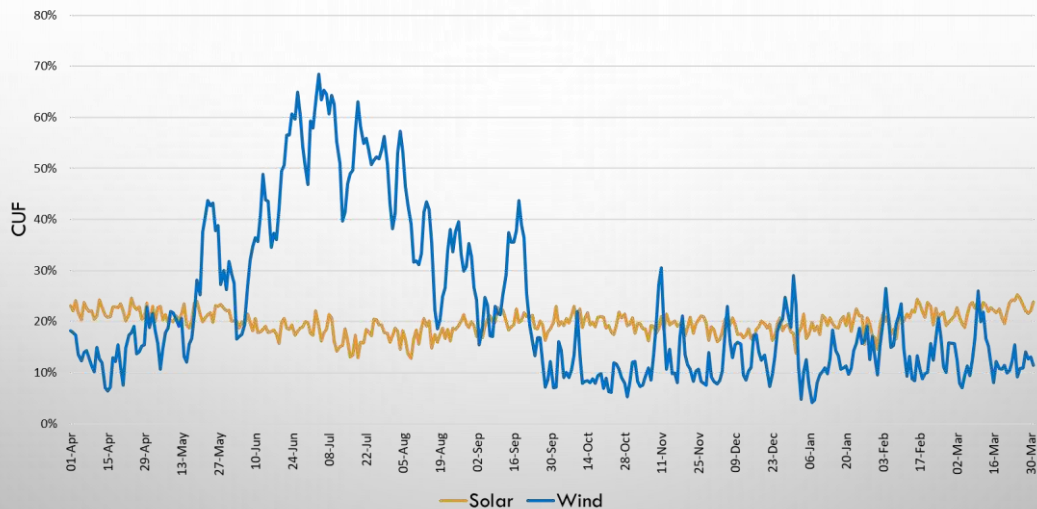
**TOTAL 4,79,419 MW**

## LIKELY RENEWABLE INSTALLED CAPACITY IN MARCH 2022

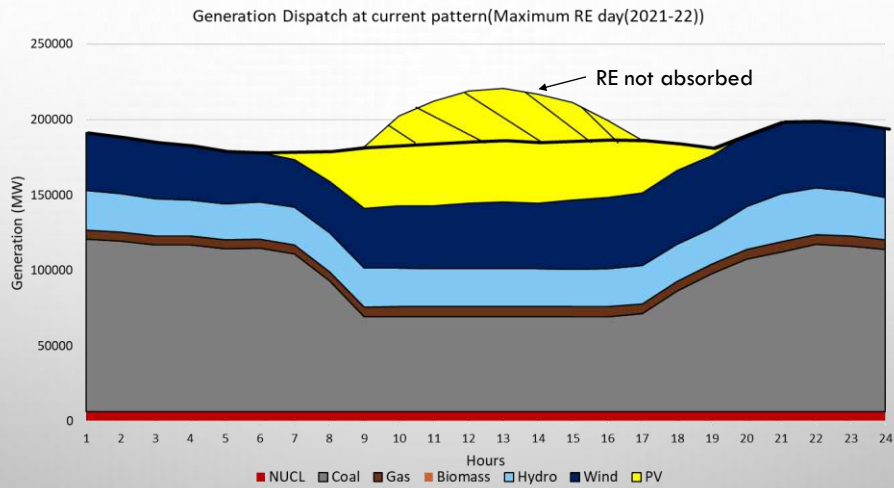


## VARIATION OF RE (SOLAR + WIND)

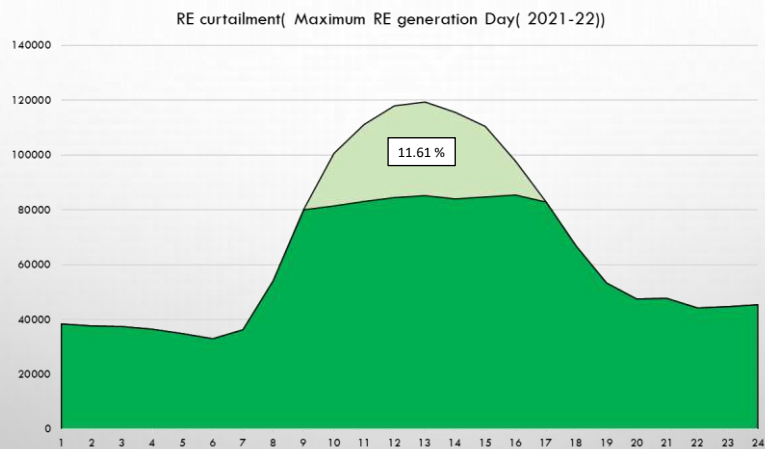
Variation in Capacity Utilisation Factor of RE over a year



## GENERATION DISPATCH IN 2021-22



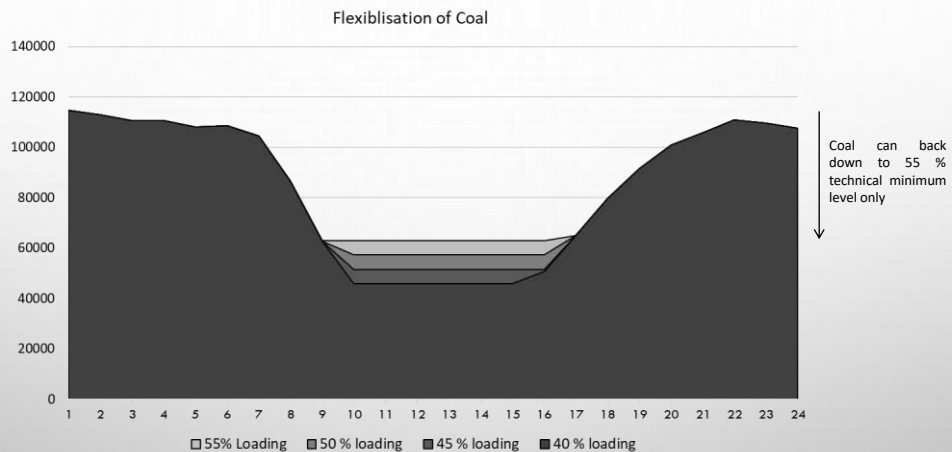
## RENEWABLE ENERGY CURTAILMENT



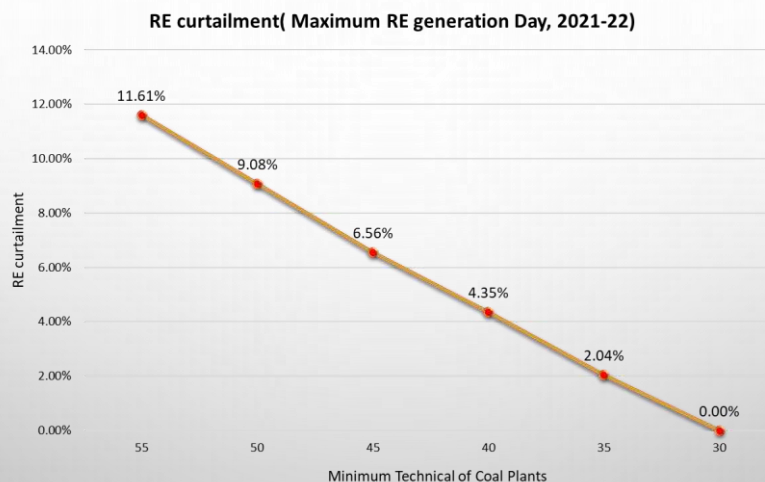
## TECHNOLOGIES SUITABLE FOR OPTIMIZATION

Conventional Technologies	Renewable Technologies
Coal	Hydro Power (with Storage Reservoir)
Gas	Pumped Storage System

## OPTIMIZATION OF COAL



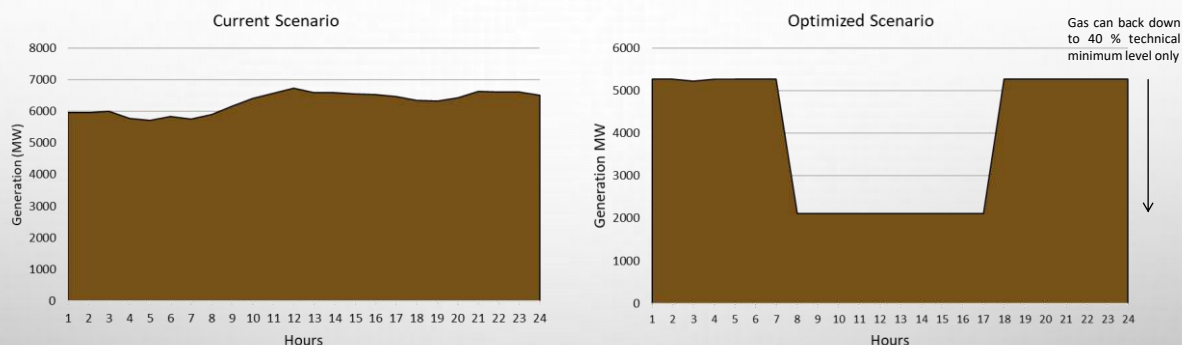
## IMPACT OF MINIMUM TECHNICAL OF COAL ON RE CURTAILMENT



## ISSUES ASSOCIATED WITH FLEXIBILITY IN COAL PLANTS

- ADDITIONAL INVESTMENT TOWARDS RETROFITTING TO RUN PLANTS AT LOW LOADS
- LIMITED RAMP UP AND RAMP DOWN RATES
- REDUCTION IN LIFE - HIGHER O&M COSTS DUE TO FREQUENT LOAD VARIATIONS.
- LOSS IN EFFICIENCY AT PARTIAL LOADING.
- HIGHER EMISSION OF CO<sub>2</sub>

## OPTIMIZATION OF GAS GENERATION



## ISSUES ASSOCIATED WITH OPTIMIZING GAS BASED GENERATION

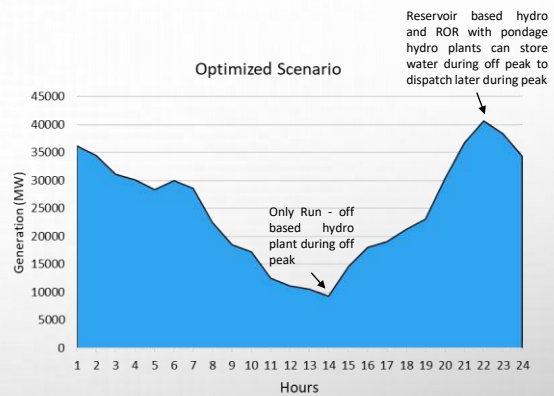
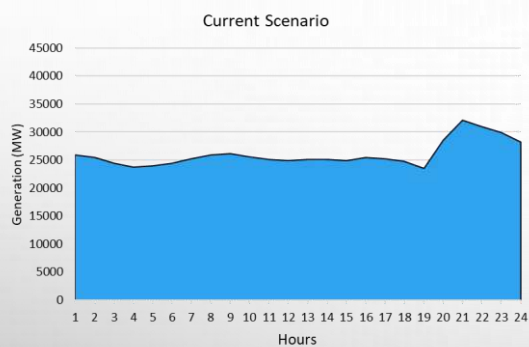
- HUGE SHORTAGE OF DOMESTIC GAS
- CONSTRAINTS DUE TO GAS SUPPLY CONTRACTS
  - GAS SUPPLY CONTRACTS ARE GENERALLY FOR A FIXED AMOUNT OF GAS DURING THE ENTIRE DAY. TO HAVE GAS SUPPLY ONLY DURING PEAK HOURS MAY POSE PROBLEMS
- CONSTRAINTS OF THE GAS PIPE LINE
  - POWER PLANTS ARE NOT THE ONLY CONSUMERS OF THE GAS. THERE ARE OTHERS LIKE FERTILIZER PLANTS ON THE GAS PIPE LINE WHICH NEED GAS SUPPLY AT A CERTAIN PRESSURE TO BE MAINTAINED
- CONSTRAINTS OF THE PRICING OF IMPORTED RLNG
  - IMPORTED LNG PRICE IS DUAL DEPENDENT ON GAS PRICE FLUCTUATIONS IN THE INTERNATIONAL MARKET AND THE DOLLAR EXCHANGE RATE
- CONSTRAINTS OF THE IMPORTED RLNG TERMINALS AND REGASIFICATION PLANTS
  - IMPORTED RLNG TERMINALS IN OPERATION ARE LOCATED IN WEST COAST AND MANY GAS BASED PLANTS LOCATED IN THE EAST COAST CAN NOT GET IMPORTED RLNG THROUGH THE PIPE LINE



## OPTIMIZATION OF HYDRO GENERATION

Year	ROR	%	ROR(P)	%	Storage	%	Mul. Pur	%	PSS	%	Total	Import	SHP	Gr. Total
2021/22	4039	8.0%	19985	39.7%	8646.7	17.2%	11910	23.7%	5746	11.4%	50327	4356	5000	59683

## OPTIMIZATION OF HYDRO





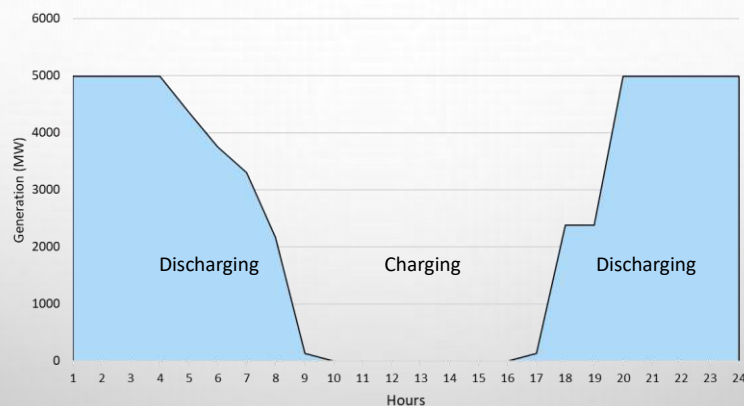
## ISSUES ASSOCIATED WITH OPTIMIZING HYDRO BASED GENERATION

- SEVERAL HYDRO PROJECTS ARE RUN OFF RIVER AND MULTI-PURPOSE PROJECTS- SO HAVE TO RUN DURING OFF PEAK HOURS
- NO COMMERCIAL MECHANISM TO PROMOTE OPERATION DURING PEAK HOURS, PARTICULARLY IN STATES.
- HYDRO PROJECTS FACING PROBLEMS OF SILT WHICH REDUCES THE RESERVOIR CAPACITY OF PROJECT.

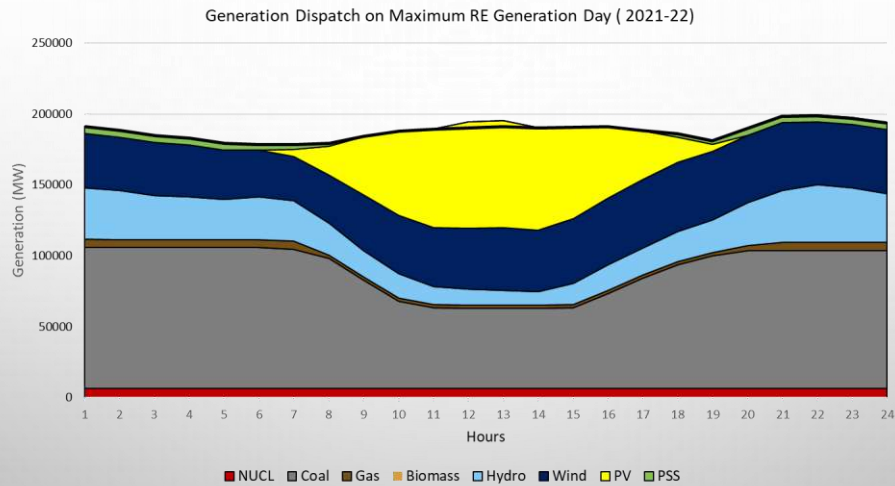
## OPTIMIZATION OF PUMPED STORAGE HYDRO PLANTS

Current PSP capacity – 2760 MW

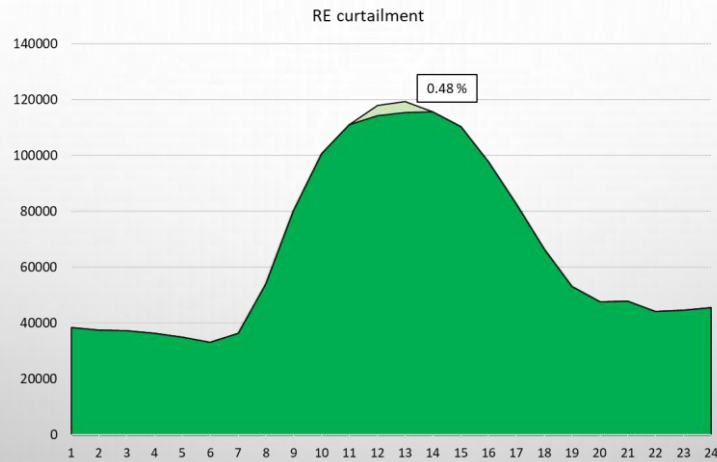
PSP capacity in 2021-22 – 5746 MW



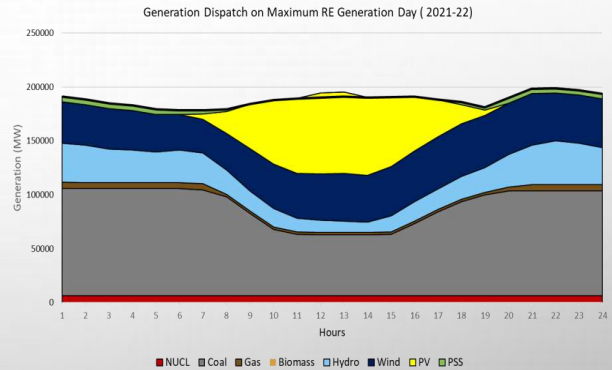
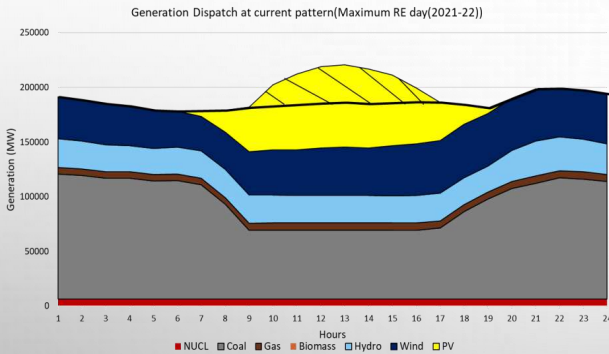
## OPTIMIZED GENERATION



## RE CURTAILMENT AFTER OPTIMIZATION



## COMPARISON



# Capacity Building of Eastern Region SLDCs

## 40<sup>TH</sup> ERPC MEETING

1

Power System Operation Corporation Ltd  
Human Resource Development



### **HRD INITIATIVES**

## BACKGROUND

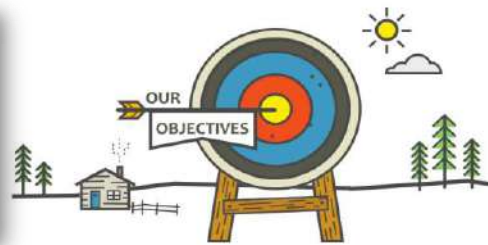


- POSOCO is committed to facilitating Capacity Building and development of System Operators.
- POSOCO organizes several Capacity Building programs including functional , statutory, behavioral and health related to enable all-round development of employees.
- CERC has accorded approval for the utilization of the LDC Development Fund for meeting the expenses on conduct of training of the personnel deployed on System Operations in SLDCs, through NPTI.

## ACADEMIA – INDUSTRY SYNERGY AND PARTNERSHIP



- MOU with Foundation for Innovation and Technology Transfer (IIT Delhi)
- MOU with IIT Kanpur and Jamia Millia Islamia.
- MOU with Sardar Patel College of Engineering, Mumbai.
- MOU with Lawrence Berkeley National Laboratory, USA
- Partnership with International Experts.



- All round empowerment to promote culture of excellence.
- Build and upgrade skills and competencies for motivation and growth.
- Facilitate continuous improvement in Knowledge, Skill and Attitude (Technical, Managerial and Behavioural)
- Extend HRD programs for the benefit of stakeholders.

5

### FUNCTIONAL PROGRAMS

Code	Name of Program
<b>System Operation</b>	
SO 1	Frequency Control and Reserves
SO 2	Transfer Capability Assessment and Congestion Management
SO 3	Basics of Power System Protection and System Protection Schemes
SO 4	Power System Studies on PSSE & Python Programing for PSSE
SO 5	Power System Optimisation
SO 6	Basic Level Training on PSCAD
SO 7	Basic Level Training on MATLAB
SO 8	Demand and RE Forecasting & Renewable Integration
SO 9	Meteorology for System Operators
SO 10	Reactive Power Management
SO 11	Advances in Power System Visualisation
SO 12	PMU Analytics and WAMS



FUNCTIONAL

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## FUNCTIONAL PROGRAMS

**Market Operation**

MO 1	Financial Products in Electricity Market
MO 2	Metering and Settlement Systems
MO 3	Electric Vehicle and Storage Technologies
MO 4	Transmission Pricing
MO 5	Open Access Administration

FUNCTIONAL

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## FUNCTIONAL PROGRAMS

**SCADA & IT**

SCADA & IT 1	IT in System Operation
SCADA & IT 2	Fundamental IT Skills
SCADA & IT 3	Basics of MS Office
SCADA & IT 4	Advanced MS Excel
SCADA & IT 5	Workshop on Info. Security & Cyber Crisis Management
SCADA & IT 6	Introduction to Database Applications
SCADA & IT 7	Basic Network Administration
SCADA & IT 8	Basic Program on SCADA & EMS
SCADA & IT 9	Advanced Module on SCADA, EMS & DTS

FUNCTIONAL

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## FUNCTIONAL PROGRAMS



### Contracts & Materials

C&M 1      Effective Contracts & Store Management

### Renewable Energy Certification

REC 1      Renewable Energy Sources and Grid Integration  
 REC 2      Integration of Renewables  
 REC 3      Renewable Energy Certificate Mechanism

FUNCTIONAL

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## FUNCTIONAL PROGRAMS



### Rajbhasha

RAJ 1      Rajbhasha Karyashala

### Finance

FIN 1      Strategic Finance Workshop  
 FIN 2      Finance for Non-Finance

### Human Resources

HR 1      Workshop on Relevant Legislations in HR & CSR  
 HR 2      HR Analytics  
 HR 3      Govt. Policy on Reservation

FUNCTIONAL

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## FUNCTIONAL PROGRAMS



### Functional for Non - Functional

FGEN 1	Technical for Non-Technical Personnel
FGEN 2	Basic Statistics and Business Analytics

FUNCTIONAL

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## BEHAVIOURAL PROGRAMS



Code	Name of Program
<b>Behavioural</b>	
BEH 1	Team Building : Experiential Learning Workshop
BEH 2	Creative Thinking and Problem solving
BEH 3	Excellent Habits for Effectiveness
BEH 4	Improving Interpersonal Skills and Emotional Intelligence
BEH 5	Developing Negotiation Skills and Conflict Resolution
BEH 6	Utkarsh
BEH 7	Special Utkarsh
BEH 8	Presentation Skills and Public Speaking
BEH 9	How to Say it at Work
BEH 10	Communication Secrets of Great Leaders
<b>Leadership</b>	
LDRSHP 1	Mentoring and Coaching

BEHAVIOURAL

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## GENERAL PROGRAMS



### General

GEN 1	Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act & Workplace Demographics : Gender Diversity
GEN 2	Workplace Ergonomics, Safety and First Aid
GEN 3	Training the Trainers
GEN 4	Enterprise Knowledge Management
GEN 5	Work Ethics, Preventive Vigilance and RTI Act
GEN 6	Next Innings
GEN 7	Training on Social Media, Business Etiquettes and Information Security Awareness
GEN 8	Awareness Program on Integrated Management System (IMS)
GEN 9	Electricity Act, 2003

**GENERAL**

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## HEALTH PROGRAMS



### Health

HEALTH 1	Program on Uyir Nokkam
HEALTH 2	Program on Inner Engineering
HEALTH 3	Program on Hatha Yoga
HEALTH 4	Art of Living
HEALTH 5	Women Wellness

**HEALTH**

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POSOCO HAPPILY EXTENDED ITS HRD PROGRAMMES TO SLDCS DURING THE FY 2018-19 AND LOOKS FORWARD TO CONTINUE IT IN THE NEXT FINANCIAL YEAR.

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## REGARDING IN-HOUSE TRAINING PROGRAMS OF POSOCO



- We invited SLDCs to join In- House HRD programmes of POSOCO and avail this opportunity to train their employees.
- These trainings were offered to all SLDC Officials. The cost for travel and accommodation charges is to be borne by the sponsoring SLDC.
- All programs have 5 slots reserved for SLDC nominees which are be filled on "First Come- First Serve' basis.

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## HRD PROGRAMS

Sl.No	Programme Name
1	HR Analytics
2	Reactive Power Management
3	Frequency control & reserves 13-14 June-2018
4	Electricity Act 2003
5	Sexual Harassment of women at work place (Prevention prohibition and redress ) Act
6	Capacity Building workshop for SR Entities from 19/04/2018 to 20/04/2018 (FOLD Program)
7	Team Building: Experiential Learning from 25/06/2018 to 27/06/2018
8	Developing Negotiation Skills and conflict Resolution from 18/07/2018 to 20/07/2018
9	Power System Studies on PSSE & Python Programming for PSSE
10	Advances in Power system visualisation

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## HRD PROGRAMS

Sl.No	Programme Name
11	Open Access Administration on 20-21 Aug-2018
12	Power System Protection and System Protection Scheme on 4-5 Oct-2018
13	IT in System Operation on 25-26 Oct-2018
14	Training the Trainer on 26-28 Nov 2018
15	System Restoration workshop on 18 Jan 2019
16	Web Based Outage Module
17	Capacity Building workshop
18	Awareness programme on Integrated Management System on 26-27 Nov 2018
19	Basics of MS Office on 28-30 Nov 2018
20	PMU Analytics & WAMS on 10-12 October,2018
21	Knowledge Management on 25-26 October, 2018

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## SLDC WISE PARTICIPATION

Southern		
S. No.	Name of SLDC	No. of Participants
1	TN SLDC	2
2	TS SLDC	9
3	APSLDC	2
4	KPTCL (Karnataka, SLDC)	14
5	KSEB (Kerala, SLDC)	1

Western		
S. No.	Name of SLDC	No. of Participants
1	SLDC, GUJRAT	5
2	MSLDC, KALWA	5
3	SLDC, MP	1
4	SLDC Rajasthan	3
5	SLDC, Vadodara	3

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## SLDC WISE PARTICIPATION

Eastern		
S. No.	Name of SLDC	No. of Participants
1	SLDC ODISHA	2
2	SLDC RANCHI	1
3	SLDC, CSPTCL	2
4	WBSETCL (WB SLDC)	7
5	BSPTCL (Bihar SLDC)	1
6	SLDC & ULDC, JUSNL	2

North Eastern		
S. No.	Name of SLDC	No. of Participants
1	SLDC ASSAM	19
2	SLDC MANIPUR	5
3	SLDC NAGALAND	2
4	SLDC TRIPURA	1
5	SLDC MEGHALAYA	17
6	SLDC ITANAGAR	2

Northern		
S. No.	Name of SLDC	No. of Participants
1	UPSLDC	1
2	PSTCL (Punjab SLDC)	2

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Other Constituents		
S. No.	Name	No. of Participants
1	SRPC	1
2	WRPC	5
3	NTPC	15
4	ACBIL	1
5	RENEW	3
6	CGPL	2
7	SUGEN DGEN TORRENT POWER	1
8	BALCO	2
9	RKM	2
10	DB POWER LTD	3
11	ESSAR POWER MP LTD	2
12	IEPL	1

13	GMR	1
14	NCA	2
15	SPPRING ENERGY PVT LTD	2
16	JINDAL POWER	2
17	MAHINDRA SUSTEN	2
18	ADANI POWER	3
19	MUNDRA	2
20	GMR WARORA	2
21	IEX	1
22	NPCIL	4
23	APTRANSCO	10
24	NLCIL	4
25	KSEBL	4

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Other Constituents		
S. No.	Name	No. of Participants
26	TAN TRANSCO	2
27	CEPL	2
28	TS TRANSCO	1
29	LANCO	2
30	SGPL	2
31	PGCIL	9
32	SEBMCORP	1
33	NTECL	1
34	TANGEDCO	2
35	DVC	3
36	SASAN, UMPP	2
37	NSPCL, BHILAI	2
38	CGPL, MUNDRA	1

39	MPPMCL	2
40	GUVNL	2
41	BARC	1
42	NHPC	1
43	NRPC	12
44	MSEDCL	4
45	Sterlite	1
46	GETCO	1
47	NPC	1
48	NPCIL	1
49	CEA	1
50	BBMB	2

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## TOTAL PARTICIPATION

Region	Total Participants
Southern	28
Eastern	15
Western	17
Northern	3
North Eastern	46
Other Constituents	136
<b>Total</b>	<b>245</b>
<b>No. of Programs</b>	<b>21</b>
<b>No. of participants from SLDC</b>	<b>109</b>

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## GLIMPSE OF TRAINING PROGRAMS




## FEEDBACK FROM SLDCS

SLDC Employees	Training	Feedback
L.Ritu (SLDC, Manipur)	Knowledge Management	Learnt different ways of analysing oneself as manager; Good interaction and examples.
Khoisnam Steela(SLDC, Manipur)	Knowledge Management	Very interesting and second level/phase could be very helpful.
N. Shangpliang	Financial Products in Electricity Market	Excellent Faculty.



<p>L-RITU SIDC (MANIPUR)</p>  <p>8. If the same programme is organized once again how differently would you want it?</p> <p><i>More duration / More days for the program for duration</i></p> <p>10. What were the key learning points from this programme?</p> <p><i>Difficult step of analyzing oneself as a manager</i></p> <p>11. Give one good point about the programme.</p> <p><i>Good interaction and good example</i></p> <p>12. Give one improvement area about the programme.</p> <p><i>[Signature]</i> Signature/Name (Opti)</p>	<p>KHOISNAM STEELA SIDC (MANIPUR)</p>  <p>8. If the same programme is organized once again how differently would you want it?</p> <p><i>A second level/phase could be very helpful.</i></p> <p>10. What were the key learning points from this programme?</p> <p><i>Whole course content is new to me. Everything is learning point.</i></p> <p>11. Give one good point about the programme.</p> <p><i>Very interesting</i></p> <p>12. Give one improvement area about the programme.</p> <p><i>[Signature]</i> Signature/Name (Opti)</p>
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 <p>8. If the same programme is organized once again how differently would you want it?</p> <p><i>→ would be better to include more modules</i></p> <p>10. What were the key learning points from this programme?</p> <p><i>Reproducing Community members &amp; ISO</i></p> <p>11. Give one good point about the programme.</p> <p><i>Excellent Training Organisation</i></p> <p>12. Give one improvement area about the programme.</p> <p><i>[Signature]</i> Signature/Name (Optional)</p>	<p>8. If the same programme is organized once again how differently would you want it?</p> <p><i>a little more time should be considered, would make it more detailed &amp; hands on training time increased.</i></p> <p>9. What were the key learning points from this programme?</p> <ul style="list-style-type: none"> <li>① System modelling, SLDs, Tools &amp;</li> <li>② TR, BTL, calculations</li> <li>③ Fault analysis</li> </ul> <p>10. Give one good point about the programme.</p> <p><i>More focus on hands on training and give one-to-one interaction with trainees</i></p> <p>11. Give one improvement area about the programme.</p> <p><i>- None -</i></p> <p><i>[Signature]</i> Signature/Name (Optional)</p>
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# **ABBREVIATIONS**

SLDC - State Load Despatch Centre

UMPP- Ultra Mega Power projects

NSPCL- NTPC-SAIL Power Company Limited

MSLDC- Maharashtra State Load Dispatch Centre

CGPL - Coastal Gujarat Power Limited (CGPL)

WBSETCL- West Bengal State Electricity Company Limited

BSPTCL- Bihar State Power Transmission Company Limited

DVC- Damodar Valley Corporation

SRPC- Southern Regional Power Committee NPCIL- Nuclear Power Corporation of India

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NPCIL- Nuclear Power Corporation of India Limited

NTPC- National Thermal Power Corporation Limited

APTRANSCO-Andhra Pradesh Transmission Corporation

NLCIL- Neyveli Lignite Corporation Limited

KSEB- Kerala State Electricity Board

KPTCL- Karnataka Power Transmission Corporation Limited

TAN TRANSCO- Tamil Nadu Transmission Corporation Limited

CEPL- Coastal Energen Pvt Ltd

TSTRANSCO- Transmission Corporation of Telangana

LANCO- Lagadapati Amarappa Naidu and Company Infratech

SGPL- Sembcorp Gayatri Power Ltd.

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PGCIL- Power Grid Corporation of India Limited  
 NTECL- NTPC Tamil Nadu Energy Company Limited  
 KPTCL- Karnataka Power Transmission Corporation Limited  
 TANGEDCO- Tamil Nadu Generation and Distribution Corporation  
 TS SLDC-Telangana State Load Despatch Center  
 KSEBL- Kerala State Electricity Board Limited  
 WRPC- Western Regional Power Committee  
 CSPTCL- Chhattisgarh State Power Transmission Company Limited  
 MP SLDC- Madhya Pradesh State Load Despatch Center  
 BBMB- Bhakra Beas Management Board

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MPPMCL- Madhya Pradesh Power Management Company Limited  
 GUVNL- Gujarat Urja Vikas Nigam Limited  
 BARC- Bhabha Atomic Research Centre  
 WRTS- Western Region Transmission System  
 NTPC(OS)- National Thermal Power Corporation (Operation Services)  
 ACBIL- Aryan Coal Beneficiations Private Limited  
 CGPL- Coastal Gujarat Power Limited  
 BALCO- Bharat Aluminium Company  
 IEPL- Ideal Energy Projects Limited  
 GMR- Grandhi Mallikarjuna Rao

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NCA- Narmada Control Authority

IEX- Indian Energy Exchange

ULDC- Unified load dispatch and communication

JUSNL- Jharkhand Urja Sancharan Nigam Limited

GETCO- Gujarat Energy Transmission Corporation

NHPC- National Hydroelectric Power Corporation

NRPC- Northern Regional Power Committee

NPC- National Productivity Council

PSTCL- Punjab State Power Corporation Limited

CEA- Central Electricity Authority of India

MSEDCL- Maharashtra State Electricity Distribution Company Limited

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# THANK YOU

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**Annexure-8**

The detailed list of proposed State/constituent–wise participants for the Foreign Training

Serial No.	State/Org.	<b>1<sup>st</sup> Batch</b> (ERPC members or equivalent executive)	<b>2<sup>nd</sup> Batch</b> (TCC members or equivalent executive)	<b>3<sup>rd</sup> Batch</b> (Middle Level Executives)	<b>4<sup>th</sup> Batch</b> (Middle Level Executives)	Remarks
1	Bihar	2	1	3	1	Among State Gencos, STU, SLDC, Discoms
2	Jharkhand	2	1	2	1	„
3	Odisha	2	1	3	1	„
4	West Bengal	2	1	3	1	„
5	Sikkim	1	1	1	1	„
6	DVC	1	1	1	1	
7	ERPC	1	2	2	2	
8	ERLDC	1	2		1	
9	NLDC	1			1	
10	CEA	1			1	
11	MoP, GoI	1			1	
12	NTPC		1		1	
13	NHPC		1		1	
14	Powergrid		1		1	
15	NVVN		1			
16	PTC		1			
<b>TOTAL</b>		<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>	

Task/ Works performed by ERPC during November, 2018		
NOVEMBER, 2018		
Sl. No.	Period	Date of Report
1	Deviation Account and RRAS Account 15.10.18-21.10.18	01-11-2018
2	VAR Account 15.10.18-21.10.18	01-11-2018
3	BRBCL share allocation w.e.f 28.10.2018	02-11-2018
4	REA for October-2018	02.11.2018
5	Provisional Power Supply position for the month of Oct -18	02.11.2018
6	RTA October-18	05.11.2018
7	Bilateral REA for October -2018	05.11.2018
8	DC for MPL – October 2018	05.11.2018
9	DC for Teesta-III – October,2018	05.11.2018
10	Transmission System Availability Certificate for TPTL Transmission Elements for Sep-18	06.11.2018
11	Transmission System Availability Certificate for CBPTCL Transmission Elements for Sep-18	06.11.2018
12	REA Bhutan October-18	08.11.2018
13	AS-3 Format 16.11.18-15.12.18	12.11.2018
14	Deviation Account and RRAS Account 22.10.18-28.10.18	12-11-2018
15	Revised RRAS Account 15.10.18-21.10.18	12-11-2018
16	Compensation statement for September-18	12.11.2018
17	VAR Account 22.10.18-28.10.18	12-11-2018
18	Transmission System Availability Certificate for PKTCL Transmission Elements for Sep-18	13.11.2018
19	Transmission System Availability Certificate for OPGCL Transmission Elements for Sep-18	13.11.2018
20	Transmission System Availability Certificate for Powergrid Transmission Elements for Sep-18	13.11.2018
21	Progress Report September-2018	13-11-2018
22	Transmission System Availability Certificate for ENICL Transmission Elements for Sep-18	13.11.2018
23	Deviation Account and RRAS Account 29.10.18-04.11.18	19-11-2018
24	REA for October-2018 -Revision-I	19.11.2018
25	URS October-18	20-11-2018
26	VAR Account 29.10.18-04.11.18	20-11-2018
27	Revised Bilateral REA for August,18	20.11.2018
28	Deviation account and RRAS account 05.11.18-11.11.18	26-11-2018
29	VAR Account 05.11.18-11.11.18	26-11-2018
30	Transmission System Availability Certificate for DMTCL Transmission Elements for Aug-18	26.11.2018
31	Revised Power Supply position for the month of Oct-18	28.11.2018
32	RTA October-18 Revision-I	29.11.2018
33	Progress Report October-2018	30-11-2018
34	MPPR October,2018	30-11-2018

Task/ Works performed by ERPC during December, 2018		
Sl. No.	Period	Date of Report
1	Revised URS October-18	03-12-2018
2	VAR Account 12.11.18-18.11.18	04-12-2018
3	Deviation account and RRAS account 12.11.18-18.11.18	04-12-2018
4	REA for November-2018	04.12.2018
5	DC for Teesta-III – November,2018	04.12.2018
6	DC for MPL – November 2018	04.12.2018
7	RTA November-18	05.12.2018
8	Bilateral REA for November -2018	05.12.2018
9	Provisional Power Supply position for the month of Nov -18	05.12.2018
10	Compensation statement for October-18	05.12.2018
11	REA Bhutan November-18	06.12.2018
12	Transmission System Availability Certificate for Powerlinks Transmission Elements for Sep-18& Oct-18	06.12.2018
13	Transmission System Availability Certificate for CBPTCL Transmission Elements for Oct-18	06.12.2018
14	Transmission System Availability Certificate for ENICL Transmission Elements for Oct-18	06.12.2018
15	Transmission System Availability Certificate for DMTCL Transmission Elements for Sep-18 & Oct-18	06.12.2018
16	Transmission System Availability Certificate for PKTCL Transmission Elements for Oct-18	06.12.2018
17	Transmission System Availability Certificate for OPGCL Transmission Elements for Oct-18	06.12.2018
18	Transmission System Availability Certificate for TPTL Transmission Elements for Oct-18	06.12.2018
19	Transmission System Availability Certificate for Powergrid Transmission Elements for Oct-18	07.12.2018
20	Re-allocation of NTPC Stations of ER region w.e.f 11.12.2018	10-12-2018
21	VAR Account 19.11.18-25.11.18	11-12-2018
22	Deviation account and RRAS account 19.11.18-25.11.18	11-12-2018
23	Deviation Account, RRAS & FRAS Account 261118-021218	14-12-2018
24	VAR account 261118-021218	14-12-2018
25	AS-3 Format 16.12.18-15.01.19	14.12.2018
26	Deviation Account, RRAS & FRAS Account 031218-091218	21-12-2018
27	Revised Power Supply position for the month of Nov-18	27.12.2018
28	Rev.Transmission System Availability Certificate for DMTCL Transmission Elements for June-18 & July-18	27.12.2018
29	Draft LGBR Report for the Year 2019-20	28.12.2018
30	Deviation account and RRAS account 10.12.2018-16.12.2018	31-12-2018

Task/work performed by ERPC during January-2019		
JANUARY, 2019		
Sl. No.	Period	Date of Report
1	URS November-18	02-01-2019
2	Compensation statement for November-18	03.01.2019
3	DC Teesta III December 2018	03.01.2019
4	REA December 2018	03.01.2019
5	DC-MPL-December	04.01.2019
6	RTA December-18	04.01.2019
7	Provisional Power Supply Position for Decmber-2018	04.01.2019
8	Bilateral REA for December -2018	04.01.2019
9	VARH-Account-031218-091218	04.01.2019
10	VARH-Account-101218-161218	04.01.2019
11	AS-3 Format 16.01.19-15.02.19	05.01.2019
12	Revised Bilateral REA for December -2018	07.01.2019
13	VAR Account 171218-231218	08.01.2019
14	Deviation Account , RRAS & FRAS Account 17.12.18-23.12.18	08-01-2019
15	REA Bhutan December-18	08.01.2019
16	RTDA for the month of July, August & September- 2018	10-01-2019
17	VAR Account 241218-301218	11.01.2019
18	Deviation Account, RRAS & FRAS Account 241218-301218	11-01-2019
19	Transmission System Availability Certificate for CBPTCL Transmission Elements for Nov-18	14.01.2019
20	Transmission System Availability Certificate for Powerlinks Transmission Elements for Nov-18	14.01.2019
21	Transmission System Availability Certificate for TPTL Transmission Elements for Nov-18	14.01.2019
22	Transmission System Availability Certificate for PKTCL Transmission Elements for Nov-18	14.01.2019
23	Transmission System Availability Certificate for OPGCL Transmission Elements for Nov-18	14.01.2019
24	Deviation Account, RRAS & FRAS Account 311218-060119	17-01-2019
25	VAR Account 311218-060119	17.01.2019
26	URS December-18	24-01-2019
27	Revised Power Supply Position for December-2018	24.01.2019
28	Deviation Account, RRAS & FRAS Account 070119-130119	25-01-2019
29	VAR Account 070119-130119	25.01.2019
30	Deviation Account, RRAS & FRAS Account 140119-200119	31-01-2019
31	VAR Account 140119-200119	31.01.2019
32	Progress Report December-2018	31-01-2019



<b>List of Meetings / Workshops held during the month of November, 2018</b>			
Sl. No.	Description	Date	Venue
1	Meeting on SCADA	12.11.2018	ERLDC, Kolkata
2	39th TCC Meeting	16.11.2018	Jaipur
3	39th ERPC Meeting	17.11.2018	Jaipur
4	151st OCC Meeting	27.11.2018	Farakka
5	73rd PCC Meeting	29.11.2018	ERPC, Kolkata
6	8th Meeting of NPC	30.11.2018	Guwahati

<b>List of Meetings / Workshops held during the month of December, 2018</b>			
Sl. No.	Description	Date	Venue
1	Meeting on Islanding Scheme of IbTPS	12.12.2018	ERPC, Kolkata
2	Meeting regd. Lalmatia Issue	13.12.2018	ERPC, Kolkata
3	Mtg. with CEO, DMTCL	14.12.2018	ERPC, Kolkata
4	152nd OCC Meeting at Floatel	17.12.2018	Hotel Floatel, Kolkata
5	Meeting on LGBR	18.12.2018	ERPC, Kolkata
6	74th PCC Meeting	19.12.2018	ERPC, Kolkata
7	Meeting with CPWD	20.12.2018	ERPC, Kolkata
8	Demonstration of Black Start at Balimela	21.12.2018	ERPC, Kolkata
9	Special meeting on Bus Splitting arrangement at Durgapur S/S	26.12.2018	ERPC, Kolkata
10	Hindi Workshop	26.12.2018	ERPC, Kolkata
11	Workshop on DSM	27.12.2018	ERPC, Kolkata

<b>List of Meetings / Workshops held during the month of January, 2019</b>			
Sl. No.	Description	Date	Venue
1	Mtg. on e-office Implementation	03.01.2019	ERPC, Kolkata
2	Meeting with MPL	08.01.2019	ERPC, Kolkata
3	Meeting on Operationalization of Bus splitting scheme in Durgapur S/s	17.01.2019	ERPC, Kolkata
4	Meeting on Maintenance Program of Trans. Lines	18.01.2019	ERLDC, Kolkata
5	153rd OCC Meeting	21.01.2019	ERPC, Kolkata
6	75th PCC Meeting	22.01.2019	ERPC, Kolkata
7	Mtg. with PTC	24.01.2019	ERPC, Kolkata
8	Workshop on PoC Charges Bills	29.01.2019	ERPC, Kolkata
9	Workshop on PoC charges Calculation	30.01.2019	ERPC, Kolkata
10	Mtg. with NTPC	30.01.2019	ERPC, Kolkata
11	Special Meeting on RGMO/FGMO & PSS Tuning of Generators in ER	31.01.2019	ERPC, Kolkata

<b>List of Meetings / Workshops held during February, 2019</b>			
Sl. No.	Description	Date	Venue
1	Workshop on Enhancing Managerial Skill	04.02.2019	IMI, Kolkata
2	Meeting on APNRL & WBSEDCL Issue	08.02.2019	ERPC, Kolkata
3	Training on Substation and Tr. Line Protection	From 11.02.2019 to 13.02.2019	ERPC, Kolkata
4	Meeting with CPWD	11.02.2019	ERPC, Kolkata
5	Meeting on Transmission Availability	13.02.2019	ERPC, Kolkata
6	76th PCC Meeting	14.02.2019	ERPC, Kolkata
7	Workshop on Restoration Procedure	15.02.2019	ERPC, Kolkata
8	39th Commercial Committee Meeting	18.02.2019	ERPC, Kolkata
9	Meeting on OCC Shut down through VC	19.02.2019	ERLDC, Kolkata
10	Special Meeting on "RGMO/FGMO" of Budge-Budge units of CESC	19.02.2019	ERPC, Kolkata
11	154th OCC Meeting	21.02.2019	Mejia TPS, DVC
12	Validation Committee Meeting	21.02.2019	ERLDC, Kolkata
16	Workshop on Changing Trends in Indian Power Sector and its Economics	From 27.02.2019 to 28.02.2019	Hotel Pride Plaza, New Town, Kolkata

**LIST OF PARTICIPANTS IN THE 40<sup>th</sup> TCC MEETING**

Date: 15.03.2019

Venue: The Ummed Hotel, Jodhpur

**In Chair:** Shri M.K. Das, Chairperson, TCC & Director (Commercial), GRIDCO.

Sl. No.	Name S/Shri	Designation	Contact Number e-mail id
<b>BSHPCL</b>			
1.	A. Kumar	Chief Engineer	7763813825 abhijeet.ts.bseb@gmail.com
2.	A. Suman	EEE	7979843071 sumaneee2008@gmail.com
3.	Bhaskar Sharma	Advisor(Tech)	9771496900 bsharma2407@gmail.com
4.	Rambaboo Singh	ESE(CRITL)	7763817723 eeecritl@gmail.com
<b>CEA</b>			
5.	Vikram Singh	Director	9868893051 vikramsingh_cea@gov.in
<b>CESC</b>			
6.	A. Sen Gupta	Dy. GM (System Con)	9831802682 arunava.gupta@rp-sg.in
<b>DVC</b>			
7.	S.K. Bose	CE	8145524994 suman.bose@dvc.gov.in
8.	P. Bhattacharya	DGM(F)	9831954259/8240162764 gora_dvc@yahoo.co.in
9.	M.C. Rakshit	CE(Comml)	9831783054 manikrakshit@dvc.gov.in
10.	V.C. Pahari	CE(SLDC)	9474187767 vinay.charanpahari@gmail.com
<b>ERLDC / POSOCO</b>			
11.	D.K. Jain	ED	9883617326 dkjain@posoco.in
12.	G.Mitra	Sr. GM(MO)	9831297312 gopalmitra@posoco.in
13.	S. Banerjee	DGM	9433041823 surajit.banerjee@posoco.in
14.	S.P.Barnwal	GM(SL)	9433041812 spbarnwal@posoco.in
<b>ERPC</b>			
15.	J. Bandyopadhyay	Member Secretary	9432326351 mserpc-power@nic.in
16.	S.P. Datta	Addl. General Manager	9433067022 dattasp@gmail.com
17.	D.K. Bauri	Executive Engineer	9883617326 eeop.erp@gov.in

Sl. No.	Name S/Shri	Designation	Contact Number e-mail id
18.	P.K. De	Executive Engineer	9433125844 rpc.erpcc@gov.in
19.	G. R. Jada	Executive Engineer	9547891353 ereb_cea@yahoo.com
20.	P.P.Jena	Asst. Executive Engineer	8143673051 ppjena.erpcc@gov.in
<b>ECL</b>			
21.	Dr. M.K.Mishra	General Manager( E &M)	8434796125 Manas.cmpsi@gmail.com
22.	S. Jana	Dy.Manager(E &M)	9434797102 besu.subhajyoti@gmail.com
<b>GRIDCO</b>			
23.	M. K. Das	Director (Comml)	7606000337 dir.commercial@yahoo.com
24.	Mrs.M.Mishra	AGM(E)	9583769921/7008132185 ele.mmishra@gridco.co.in
25.	Mrs.S.Mohapatra	DGM(E)	9438907702 smohapatra025@gmail.com
<b>GMRKEL</b>			
26.	Arabinda Pani	Head-O&M	7752020444 arabinda.pani@gmrgroup.in
<b>HEL</b>			
27.	Pulak Nandy	Dy.GM(SO)	8335067266 pulak.nandy@np_sg.in
<b>IPCL</b>			
28.	D. Sarkar	VP	9007185684 debasish.sarkar@indiapower.com
29.	I.B. Chakraborty	VP	9836385467 Indu.chakraborty@indiapower.com
<b>JUVNL, JUSNL, JBVNL</b>			
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**एनएचपीसी लिमिटेड**  
(भारत सरकार का उद्यम)

**NHPC Limited**  
(A Government of India Enterprise)

फोन/Phone : \_\_\_\_\_

दिनांक/Date : **24/01/2019**

संदर्भ सं./Ref. No. एनएच/ओ&एम/जीएमसी/२२३.

**Member Secretary,**  
**Eastern Regional Power Committee (ERPC)**  
14, Golf Club Road,  
Tolleyganj,  
Kolkata-700033

**Sub: 39<sup>th</sup> Commercial Sub-Committee Meeting to be held on 18<sup>th</sup> February 2019:**  
**Agenda thereof.**  
**Ref.: ERPC Letter No. ERPC/COM-I/CCM/2018-19/8046-79 Dated 22/01/2019.**

महोदय,

This is in reference to your referred letter on the captioned subject. The Agenda Point of NHPC is attached herewith as Annexure-I for inclusion in 39<sup>th</sup> Commercial Meeting of ERPC to be held on 18<sup>th</sup> February 2019.

Thanking You.

Encl.: As above.

भवदीय,

*V K Sinha*  
24/1/19  
(V K Sinha)

**General Manager (O&M)-I**



**39<sup>th</sup> Commercial Sub-Committee Meeting of ERPC to be held**  
**18<sup>th</sup> February 2019.**

**Agenda: CERC DSM Regulation, (4<sup>th</sup> Amendment)- Discrepancy in Actual Transmission data of Rangit Power Station, NHPC.**

As per CERC DSM Regulation, (4<sup>th</sup> Amendment issued by CERC vide order No. L-1/132/2013-CERC dated 20/11/2018) in the event of sustained deviation from schedule in one direction by any regional entity, such Regional entity shall have to change sign of their deviation from schedule at least once after every 6 time blocks. The violation under this clause attracts additional charges of 20% on the daily DSM payable/receivable. In case of Rangit Power Station (3X20MW) of NHPC when machines are not operational (Off peak hour in lean season) and schedules is zero the actual transmission figures are non-zero resulting in deviation from schedule. In this scenario, when there is no injection of Power from Rangit, the actual transmission figures are beyond control of Power Station, therefore it is not possible to do the sign reversal of deviation from schedule as stipulated in the above said regulations resulting in additional charges to NHPC.

Similar case also existed in Northern Region, which was taken up with NRPC in the 155<sup>th</sup> OCC Meeting of NRPC held on 17<sup>th</sup> January 2019, wherein it was decided that ***"where injection schedule given to the generator is zero and the power from the grid is being drawn by the generator for their auxiliary consumption, in such scenario, no "additional Charge" for sustained deviation shall be imposed"***.

Accordingly, the Deviation Settlement Account for the week 31<sup>st</sup> December 2018 to 06<sup>th</sup> January 2019 has also been issued by NRPC on above assumptions (Copy attached).

In view of above, it is requested that in above condition when there is no injection from Rangit Power House or in such cases, the additional charge as Penalty on sign change may not be considered.

It is also requested that the supporting file of Deviation Settlement Account may also be provided to the utilities so that the data considered for calculation of deviation charges can be verified by the utilities. The same is being provided by NRPC/NERPC.

Subject: **REG: Additional deviation charges imposed on TUL by ERPC during zero schedule** Date: 02/08/19 06:35 PM  
 To: "msrpc-power@nic.in" <msrpc-power@nic.in>,  
 "dk.jain@posco.in" <dk.jain@posco.in>  
 Cc: BD Kumar <devendra.b@teestaurja.com>,  
 Yogendra Kumar <ykumar@teestaurja.com>,  
 Jaideep Lakhtakia <jaideep.l@teestaurja.com>  
 From: DP Bhargava <dpbhargava@teestaurja.com>

Sir,

Subject: Additional deviation charges imposed on TUL by ERPC during zero schedule

We would like to highlight that when the generation schedule of Teesta-III HEP is '0', only grid power is flowing through Teesta-III HEP bus-bar. During such period additional deviation charges has been imposed on Teesta-III HEP ,due to no sign change. We have been penalized to the tune of Rs. 1.75 lacs as DSM charges for the the period of 01-Jan-2019 to 20-Jan-2018 by ERPC. Summary of the same is given below:

Additional deviation charges (ADC) during 01-Jan-19 to 20-Jan-19							
Sl.No	Description		1-Jan-19 to 6-Jan-19	7-Jan-19 to 13- Jan-19	14-Jan-19 to 20- Jan-19	Total value(Rs)	Remarks
1	During Machine Idle Condition (Generation SCH-Zero)	ADC due to sign change when Machine is Idle	-200578.45	-96807.53	-66992.29	-364378.27	<b>By considering both ADC due to sign change and revenue during machine was in idle condition ,Penalty of Rs 1.75 Lakhs was paid from TUL to ERPC for the period of 1-Jan-19 to 20-Jan-19</b>
		ADC due to volume limit when machine is Idle	-42128.82	-31731.31	-35419.15	-109279.28	
2	Total revenue earned when Machine is in Idle Condition(Generation SCH- Zero)		105189.02	147299.89	45189.66	297678.57	

Since our generation schedule is zero, we should not be penalized due to flow of grid power through Teesta-III bus bar. Therefore, it is requested that above issue may kindly be included as an agenda item for the following meetings

39th Commercial Sub committee on 18th Feb-2019 at ERPC, Kolkata  
 154th OCC Meeting on 21-Feb-2019 at MejiaTPS, DVC, Mejia, WB

With Regards,  
 D.P. Bhargava  
 Chief Consultant (Operations & Maintenance)  
 Teesta Urja Limited



**Kanti Bijlee Utpadan Nigam Limited**  
(A Wholly Owned Subsidiary of NTPC Ltd.)



**Muzaffarpur Thermal Power Station**

Ref. No. KBUNL/COMML/1584

Date: 14-02-2019

To,  
The Member Secretary  
Eastern Regional Power Committee (ERPC)  
14, Golf Club Road, Tollygunge  
Kolkata – 700033

**Subject: Methodology for Calculation of Additional Deviation Charge for Over Injection by CGS when Grid Frequency is 50.05 Hz & above.**

Dear Sir,

This is with reference to the Weekly DSM Account, being issued by ERPC w.e.f 01.01.2019, on the basis of Amended DSM Regulations dated 20<sup>th</sup> November, 2018.

It has been observed that while calculating the ADC for over injection by Central Generating Station (CGS) when grid frequency is 50.05 Hz & above, the Rate of DSM is being taken as ACP but in our views it should be ACP or ECR (lesser of the two). In this regards please refer the following references:

**“Quote”**

**DSM Principal Regulations, Dated 6<sup>th</sup> January, 2014**

**7. Limits on Deviation volume and consequences of crossing limits**

*(4) In addition to Charges for Deviation as stipulated under Regulation 5 of these regulations, Additional Charge for Deviation shall be applicable for over-injection/under drawal of electricity for each time block by a seller/buyer as the case may be when grid frequency is „50.10 Hz and above” at the rates equivalent to charges of deviation corresponding to the grid frequency of “below 50.01 Hz but not below 50.0 Hz” (page-9).*

**DSM Amended Regulations, Dated 20<sup>th</sup> November, 2018**

3.7 Clause (3) of Regulation 5 of the Principal Regulations shall be substituted as under :-

*“(3) The Cap rate for the charges for deviation for the generating stations whose tariff is determined by the Commission shall be equal to its energy charges as billed for the previous month (page-5).*

*4.12 In clause (4) of Regulation 7 of the Principal Regulations, the words “50.10 Hz and above” shall be substituted by the words “50.05 Hz and above” (page-7).*

*Page 1/2*





**Kanti Bijlee Utpadan Nigam Limited**  
(A Wholly Owned Subsidiary of NTPC Ltd.)



**Muzaffarpur Thermal Power Station**


**"Unquote"**

So in our views, while calculating the ADC for over injection by a Generating Station, whose Tariff is determined by the Hon'ble CERC, when grid frequency is 50.05 Hz & above, the Rate of DSM at freq. 50 Hz should be applicable and the rate of DSM at 50.00 Hz in our case is ACP or ECR (lesser of the two).

It is, therefore, requested that the necessary corrections may please be done while calculating the ADC on the above case.

Matter may be taken as Additional Agenda Point for discussion in 39<sup>th</sup> Commercial Sub-committee Meeting (CCM) of ERPC to be held on 18<sup>th</sup> February, 2019, if required.

With Regards,

  
(R P Singh)  
AGM (Commercial)

Copy:

1. Chief Executive Officer, KBUNL: for Kind information Please.

Page 2/2

**Power System Operation Corporation Ltd.**  
**National Load Despatch Centre (NLDC)**



**Procedure for Pilot**  
**on**  
**Security Constrained Economic Despatch**  
**for**  
**Inter State Generating Stations pan India**

*Prepared in Compliance*  
*to*  
*CERC Order dated 31<sup>st</sup> January 2019*  
*in*  
*Petition No. 02 /SM/2019 (Suo-Motu)*

**February 2019**

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## 1. Preamble

- 1.1. This Procedure is issued in compliance to CERC order dated 31<sup>st</sup> January 2019 in Petition No. 02/SM/2019 (Suo-Motu) in the matter of Pilot on Security Constrained Economic Dispatch (SCED) of Inter-State Generating Stations (ISGS) Pan India, hereinafter referred to as “SCED Pilot”.
- 1.2. The objective of SCED is to optimize the despatch of the generation resources at inter-state level which are participating in the SCED Pilot and reduce the overall cost of production of electricity. The implementation of SCED is a step towards implementation of optimization techniques in the despatch processes at inter-state level in the Indian Power System..
- 1.3. All the words and expressions used in the Procedure shall have the same meaning as assigned to them in various CERC Regulations.
- 1.4. This procedure would be implemented w.e.f 01st April 2019.

## 2. Objective

- 2.1. The objective of the procedure is to lay down the roles, responsibilities, scheduling, despatch, accounting and settlement methodologies to be followed by the National Load Despatch Centre (NLDC), Regional Load Despatch Centres (RLDCs), State Load Despatch Centres (SLDCs), Regional Power Committees (RPCs), National Power Committee (NPC), ISGS in the implementation of the SCED.

## 3. Scope

- 3.1. The Procedure shall be applicable to all the thermal ISGS that are regional entities and whose tariff is determined or adopted by the CERC for their full capacity, hereinafter, referred to as “**SCED Generators**”. The SCED Generators would exclude gas based and nuclear based ISGS To begin with, Gas stations are being excluded in the pilot project as one physical station is using multiple fuel types as

complexity on account of unit commitment/open or closed cycle operation is to be factored in real time.

- 3.2. The Procedure shall also apply to CTU, SLDCs, RLDCs, NLDC and RPCs.

#### **4. Role of National Load Despatch Centre (NLDC)**

- 4.1. NLDC would implement requisite software applications for the SCED Pilot and update it from time to time for all the SCED Generators without compromising grid security and honouring the existing scheduling practices prescribed in the Indian Electricity Grid Code.
- 4.2. NLDC shall run the SCED application to generate the SCED / optimized schedules for the participating generators and communicate the same to the RLDCs for incorporation in the schedules.
- 4.3. NLDC would maintain and operate a bank account in the name of “National Pool Account (SCED)” for payments to/from the SCED Generators.
- 4.4. NLDC would prepare a consolidated all India statement, week wise and month-wise, indicating the schedules on account of SCED.
- 4.5. NLDC would issue a consolidated "National SCED Weekly Statement" indicating the payment and receipts to/from all SCED generators.
- 4.6. NLDC would send the consolidated "National SCED Weekly Statement" to RPCs and NPC..

#### **5. Role of Regional Load Despatch Centres (RLDCs)**

- 5.1. The respective RLDCs would incorporate the SCED schedules as received from NLDC and maintain the relevant data during the operation of the pilot including but not limited to generating station-wise installed capacity, declared capacity, schedule (including all revisions), URS, generator wise Variable cost, SCED optimized schedules for up/down, , and requisition from the generating stations.



- 5.2. The scheduling details related to SCED as implemented would be provided by RLDCs to NLDC. The reconciliation of schedules on account of SCED would be done by RLDCs with the data provided by NLDC before forwarding to RPCs.

## **6. Role of Regional Power Committees (RPCs)**

- 6.1. The RPCs would issue weekly SCED accounts along with the DSM, RRAS, FRAS and AGC accounts based on the data provided to them by RLDCs.
- 6.2. The RPCs would certify the compensation towards heat rate degradation, if any, due to SCED separately in its accounts for all SCED generators.

## **7. Scheduling & Despatch of ISGS under SCED**

- 7.1. The existing schedule & despatch procedure in accordance with IEGC (*Part 6 - Scheduling and Despatch Code*) would continue for all entities.
- 7.2. The revisions on account of DC, Requisition, URS, RRAS, LTA/MTOA/STOA etc. for SCED Generators by the utilities and schedule revisions of the SCED Generators by RLDCS would continue as per existing practices in IEGC (*Section 6.5 - Scheduling and Despatch procedure for long-term access, Medium –term and short-term open access*)
- 7.3. NLDC would run the SCED procedure to prepare the SCED schedule based on the following data of SCED Generators:
- 7.3.1. Normative On bar declared capability
  - 7.3.2. Injection schedule (latest revision)
  - 7.3.3. Ramp Rates (as declared in RRAS)
  - 7.3.4. Variable Charges (as declared in RRAS)
  - 7.3.5. Technical Minimum ( as per IEGC provisions)
  - 7.3.6. Inter-Regional Transfer Capability

The Mathematical Formulation of the Economic Despatch Model used for SCED procedure is enclosed at **Annexure - I**.

- 7.4. A schematic of scheduling under SCED Procedure is placed at **Annexure - II** for better clarity and understanding.
- 7.5. The SCED algorithm would not do unit commitment.
- 7.6. The SCED schedules, with the increment/decrement values, for each SCED Generator in a particular time block would be intimated by NLDC to respective RLDCs, normally, one-time block in advance.
- 7.7. RLDCs, would incorporate the SCED optimized schedule in the respective SCED Generator's schedule and provide a net injection schedule. The information exchange between RLDCs and NLDC would be as per **Format SCED1**.
- 7.8. SCED schedules shall be treated as deemed delivered. There would be no retrospective changes in the SCED schedules.
- 7.9. The schedules of the states/beneficiaries would not be changed under SCED and the beneficiaries would continue to be scheduled based on their requisitions from different power plants as per the existing practices.
- 7.10. A virtual SCED entity, VSCED-[Region] shall be created in the scheduling process of the RLDCs which shall act as a counter-party to the SCED schedules for all SCED generators. For example, in the Northern Region, VSCED-NR shall be created. The virtual SCED entity, by its very nature, is not a physical entity bounded by meters and hence, shall not form a part of the Regional DSM Pool.
- 7.11. Applicable injection and withdrawal loss will be applied to SCED schedules as per the existing scheduling practice.

- 7.12. The URS available due to Regulation of Power Supply provisions as per the CERC Regulations would also be used for SCED procedure similar to RRAS.
- 7.13. The SCED Generator whose scheduling has been restricted due to transmission constraints shall not be considered in the SCED optimization algorithm for despatch. The concerned RLDC shall inform NLDC about such generators. .
- 7.14. In case of any interruption in the SCED procedure (e.g. failure of optimization algorithm to converge, loss of data, communication failure, failure to update schedules, etc.), the schedules prepared through existing scheduling framework shall become applicable. NLDC/RLDCs shall notify the same. In such a case, the SCED Generators shall change its generation to come back to the schedule without SCED as per its declared ramp rate. After an interruption, SCED algorithm shall be restarted taking the existing schedule as a starting point for the SCED algorithm.

## **8. Data and Voice Communication**

- 8.1. All SCED Generators would ensure the availability of real time updated data to the RLDCs. CTU would ensure reliable communication between the respective SCED Generators and RLDCs and between RLDCs and NLDC.
- 8.2. RLDCs would provide information related to SCED optimized schedules of SCED Generators on their websites. The data display on NLDC/RLDCs Website (for each SCED Generator) would be as per ***Format SCED2***.

## **9. Energy Accounting & Settlement**

- 9.1. Energy Accounting for SCED optimized schedules shall be done by the respective RPC on weekly basis along with the DSM, RRAS, FRAS and AGC accounts based on the data provided to them by RLDCs.

- 9.2. NLDC would prepare a consolidated all India statement, week wise and month-wise, indicating the SCED optimized schedules.
- 9.3. The variable charges (paise/kWh) declared by the generators for the purpose of Reserve Regulation Ancillary Services (RRAS) shall be considered in the SCED procedure.
- 9.4. NLDC would maintain and operate a bank account in the name of “National Pool Account (SCED)” for payments to/receipts from the SCED Generators.
- 9.5. For any increment in the injection schedule of a SCED Generator due to SCED procedure, the SCED generator would be paid from the National Pool Account (SCED) for the incremental generation at the rate of its variable charges.
- 9.6. For any decrement in the schedule of a SCED provider due to optimization, the SCED provider shall pay to the aforesaid National Pool Account (SCED) for the decremental generation at the rate of its variable charges.
- 9.7. The payments to/receipts from the SCED Generators would be based on the statement of SCED issued by the Secretariat of the respective RPC. No separate bills shall be raised for this purpose.
- 9.8. NLDC would issue a consolidated "National SCED Weekly Statement" comprising of payment and receipts to/from all SCED generators. NLDC would send the same to RPCs and NPC. The NLDC "National SCED Weekly Statement" (for each SCED Generator) would be as per ***Format SCED3***.
- 9.9. The concerned SCED Generator would pay the indicated charges for SCED decrement within seven (07) working days of the issue of statement of SCED by the RPC to the National Pool Account (SCED). Payments against SCED shall not be adjusted against any other payments by the SCED Generator.

- 9.10. The concerned SCED Generator shall be paid the indicated charges for SCED increment within ten (10) working days of the issue of statement of SCED by the RPC from the National Pool Account (SCED).
- 9.11. The RPCs would certify the compensation to be paid to the SCED Generator for heat rate degradation, if any, due to SCED separately in its accounts for all SCED generators. A statement in this regard shall be issued by the RPCs on a monthly basis as per format given as ***Format SCED4*** in this procedure. NLDC shall pay compensation for heat rate degradation to the SCED generators as per the statement issued by the RPCs from the National Pool Account (SCED) within seven (07) working days of the issue of the monthly statement by the RPC.
- 9.12. NLDC shall maintain a record of all savings on accrual basis in the National Pool Account (SCED) on a weekly basis. As mentioned in the CERC Order, the methodology of sharing of the savings accrued in the National Pool Account (SCED) would be decided by CERC in due course.

## **10. Removal of Difficulties**

- 10.1. Notwithstanding anything contained in this Procedure, NLDC/RLDCs may take appropriate decisions in the interest of System Operation. Such decisions shall be taken under intimation to CERC and the procedure shall be modified/amended, as necessary.
- 10.2. In case of any difficulty in implementation of this procedure, this procedure shall be reviewed or revised by POSOCO and submit to the CERC for information.

## Annexure – I

### Mathematical Formulation – Security Constrained Economic Despatch

#### Objective Function

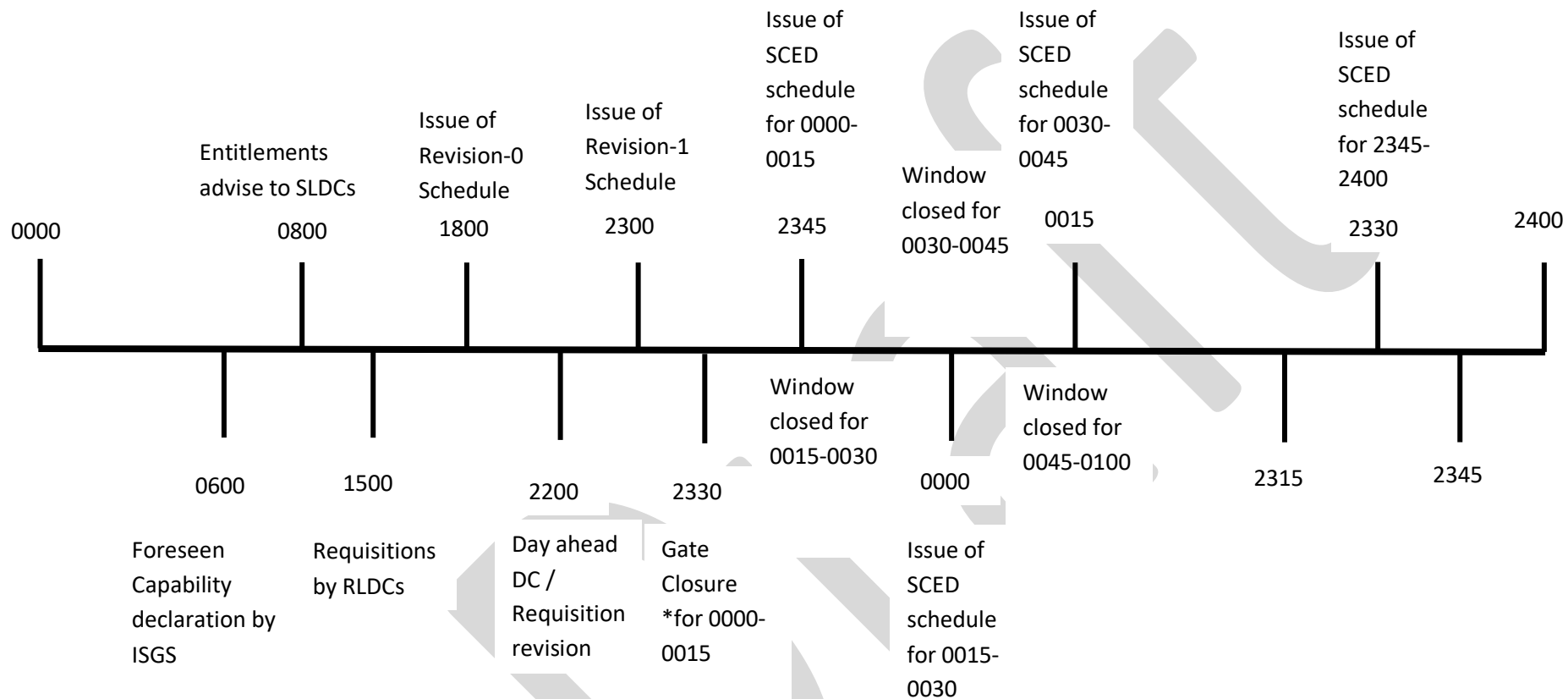
- Minimize Pan India ISGS Variable Cost

#### Subject to Constraints

- Meeting Total Requisition by States from ISGS
- Transmission Constraints (ATC)
- Technical Minimum of Plants
- Maximum Generation (DC-on-bar)
- Ramp up/down rates

- Minimise  $\sum_{i=1}^k C_i P_i$ 
  - $k$  = total number of Plants
  - Where  $C_i$  is the variable per unit cost of the  $i^{th}$  Plant
  - $P_i$  is the optimised scheduled power of the  $i^{th}$  Plant
- Subject to
  - $\sum_{i=1}^k P_i = \sum_{i=1}^k S_i$
  - $P_i \leq (DC \text{ on bar})$
  - $P_i \geq P_{i,min}$
  - $P_{i,t} \leq P_{i,t-1} + \text{Ramp up rate}$
  - $P_{i,t} \geq P_{i,t-1} - \text{Ramp down rate}$
  - $\forall r \in R, \sum_r (P_{i,r} - S_{i,r}) \geq (SCHIR_r - ATC_r)$ 
    - $S$  -is the scheduled power
    - $t$  -represents current time of execution
    - $R$  -represents each of the regions viz., North, East, West, South and North East
    - $ATC$  -is the Available Transmission Capability of each region  $R$
    - $SCHIR$  -is the Scheduled Net Interchange of the region  $R$
    - $P_{i,min}$  is the *technical minimum* for thermal power plants, considered 55% of *DC on bar*

## Annexure II: Schematic of Scheduling under SCED Procedure



*\*As per IEGC, no further changes to DC, Requisition or schedule would be allowed after the window is closed for an identified delivery period*



## Format SCED1: Information Exchange between RLDCs and NLDC

### A. Data from RLDCs to NLDC (for each SCED Generator)

SCED Generator Name: xxxxxxxxxx

Time block	On bar DC	Normative DC on Bar	Injection schedule	Ramp Up	Ramp Down	Technical Minimum	Net Inter-regional schedule of each region	Implemented SCED schedule as incorporated in WBES by RLDC
1								
2								
.....								
96								

### B. Data from NLDC to RLDCs (for each SCED Generator)

SCED Generator Name: xxxxxxxxxx

Time block	Scheduled Generation (MW)  (a)	Incremental increase or decrease in generation (MW) of SCED Generator (Increase (+)/Decrease(-))  (b)	Final SCED Optimized Scheduled Generation (MW)  (c) = (a) + (b)
1			
2			
.....			
96			





## Format SCED2: Data Display on RLDCs Website (for each SCED Generator)

**SCED Generator Name: xxxxxxxxx**

Time Block	ISGS	MTOA	STOA	LTA	Power Exchange	URS	RRAS	<b>SCED</b>	Net Total
1									
2									
.									
.									
96									
Average									
Maximum									
Minimum									
MWHR									



### Format SCED3: NLDC "National SCED Weekly Statement" (for each SCED Generator)

**SCED Generator Name: xxxxxxxxxx**

**For Week <<from date>> <<to date>>**

Date of the Week	Increment due to SCED (MWHr) <b>(A)</b>	Decrement due to SCED (MWHr) <b>(B)</b>	Charges To be Paid to SCED Generator from National Pool (SCED) (in ₹) <b>(C) = (A) x V.C.</b>	Charges To be Refunded by SCED Generator to National Pool (SCED) (in ₹) <b>(D) = (B) x V.C.</b>	Net Charges Payable (+) / Receivable (-) (in ₹) <b>(E) = (C) – (D)</b>
Day 1					
Day 2					
....					
Day 7					

### Format SCED4: RPC "Statement of Regional/National Compensation due to Part Load Operation on Account of SCED" (for each SCED Generator)

**SCED Generator Name: xxxxxxxxxx**

**For Month <<from date>> <<to date>>**

Date of the Week	Decrement due to SCED (MWHr)	Compensation to be Paid to SCED Generator as certified by respective RPCs (in ₹)
Day 1		
Day 2		
.....		
Day 7		
<b>Total</b>		



भारत सरकार  
Government of India  
विद्युत मंत्रालय  
Ministry of Power  
पूर्वी क्षेत्रीय विद्युत समिति

**Eastern Regional Power Committee**

14, गोल्फ क्लब रोड, टॉलीगंज, कोलकाता-700033  
14 Golf Club Road, Tollygunj, Kolkata-700033



Tel No.:033-24235199, 24235005 FAX No.:033-24221802, 24221358 Web: [www.erpc.gov.in](http://www.erpc.gov.in)

No: ERPC/MS/Lalmatia/ 2018/ 6661-67

Date: 14.12.2018

**To:**

1. Director (Operation), ECL, Sanctoria, Dishergarh, WB, Pin - 713333.
2. General Manager (E&M) I/C, ECL, Sanctoria, Dishergarh, WB, Pin - 713333.
3. CGM, FSTPS, NTPC Limited, Farakka.
4. GM (OS), ER - I (HQ), NTPC, Patna
5. Chief Engineer (Trans.), JUSNL, Ranchi.
6. GM cum CE, Transmission Zone, Dumka.
7. Executive Director, ERLDC, Kolkata.

**Sub: Special Meeting on "Implementation of Protection Audit Report of ERPC in connection with Repeated interruption of Power Supply from 220/132 kV Lalmatia S/ S" held on 13.12.2018 - Minutes of Meeting (MoM) - regarding**

Dear Sir,

The minutes of the meeting (MoM) "Implementation of Protection Audit Report of ERPC in connection with Repeated interruption of Power Supply from 220/132 kV Lalmatia S/ Stn" held at ERPC, Kolkata on 13.12.2018 Thursday) is enclosed for kind information and necessary action within 14.02.219 which will facilitate ERPC for further action in this regard.

Thanking you,

Yours faithfully,

*J. Bandyopadhyay* 14/12/18  
(J.Bandyopadhyay)  
Member Secretary

## ERPC:: KOLKATA

### Minutes of the Special meeting on "Implementation of Protection Audit Report of ERPC in connection with Repeated Interruption of Power Supply from 220/132/33 kV Lalmatia S/S" held on 13.12.2018 at ERPC, Kolkata

ECL, NTPC, JUSNL, ERLDC and ERPC participated in the meeting. List of the participants is attached in Annexure-A.

Member Secretary welcomed the participants. He informed that the meeting has been convened in compliance with the decision in the 39<sup>th</sup> ERPC meeting held on 17<sup>th</sup> November, 2018. He pointed out that repeated uncoordinated trippings and maloperation of relays at 220/132/33 kV Lalmatia S/S in the recent past. A Committee constituted by the protection coordination committee visited Lalmatia S/S on 16<sup>th</sup> August, 2018 for onsite inspection and for third party protection audit. The audit observations were forwarded to JUSNL and NTPC for compliance.

In the 39<sup>th</sup> TCC meeting, JUSNL informed that the upgradation work of substation in Jharkhand system has been awarded to M/s Siemens. JUSNL had already taken up with Siemens for expediting the work at Lalmatia on priority basis.

In the above TCC meeting NTPC informed that many of the equipment at Lalmatia S/S are very old, obsolete and have outlived their utility. Since the Farakka-Lalmatia system is owned by ECL, this needs to be replaced by ECL to ensure compliance of the audit observations.

In the meeting today (13-12-2018), NTPC reiterated that they are a generating company and has neither the expertise nor the license to maintain the transmission line. The 220 kV Farakka-Lalmatia S/C line and Lalmatia S/S is at present maintained by NTPC. NTPC is being essentially a power generator has genuine difficulty for continuance of the existing maintenance. NTPC appealed that the maintenance entrusted to NTPC be handed over to some other authorised transmission licensee.

ECL informed that the 220 kV Farakka-Lalmatia system was commissioned in 1990 by ECL. However the system is also being used by Jharkhand to meet a major part of its distribution load at Lalmatia. ECL further informed that at present no mechanism is in place to recover the transmission charges from Jharkhand to the extent of utilisation of Farakka-Lalmatia system by Jharkhand. As a result ECL has incurred huge losses to maintain this line and the substation. Before making any fresh investment to comply with the audit observations, the decisions regarding sharing of the investment based on extent of utilisation between ECL and Jharkhand should be finalized.

ERLDC on query from JUSNL, clarified that cost of Farakka-Lalmatia transmission system has not been factored into the YTC for PoC calculation.

Member Secretary, ERPC highlighted the seriousness of the issue arising out of the repeated tripping of the Farakka-Lalmatia system. He pointed out that, in case of any major failure in the system, not only Jharkhand and ECL would be affected, the security of the national grid would be at stake. As such the issue needs to be expeditiously resolved with all seriousness.


Thereafter detailed deliberation took place and the following decisions were arrived at.


The block contains five handwritten signatures in black ink. From left to right: a signature that appears to be 'HS', a signature that appears to be 'Tuh', a signature that appears to be 'H', a signature that appears to be 'Oh' with '13/12/18' written below it, and a signature that appears to be 'S'.




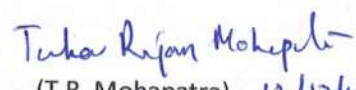
1. NTPC would implement on urgent basis the recommendations of the third party protection audit team pertaining to the points where equipment replacement/capital investment is not involved.
2. JUSNL ensured that the recommendations of the audit team would be implemented by June, 2019 pertaining to the system owned by JUSNL. Monthly progress in this respect shall be submitted by JUSNL to ERPC secretariat for deliberation in monthly PCC meetings.
3. ECL, in principle, agreed to hand over the maintenance of Farakka-Lalmatia system to Jharkhand with the same terms and conditions as they are having now with NTPC, provided Jharkhand agrees to bear the transmission charges of the Farakka-Lalmatia system to the extent of the use including arrears to the ECL.
4. It was suggested by Member Secretary ERPC that, since the core competency of ECL lies in mining activities, ECL should explore the possibility of handing over the entire Farakka-Lalmatia system to Jharkhand at some mutually agreed cost taking into consideration the depreciation of the assets and the increased utilisation of the Farakka-Lalmatia system by Jharkhand over the years for meeting its distribution load.
5. ECL also in principle agreed to the above proposal of Member Secretary ERPC.
6. JUSNL expressed that they are agreeable to take the maintenance of the Farakka-Lalmatia system as per the present terms and conditions that ECL is having with NTPC. JUSNL is also agreeable to take over the asset from ECL. JUSNL informed that as per the transmission planning of the Jharkhand system, a second 220 kV Farakka-Lalmatia line is programmed to be commissioned by Jharkhand in immediate future. Owning the existing infrastructure of Farakka-Lalmatia system would be an added advantage for JUSNL and to ECL as well, as this will ensure reliable supply to ECL coal mines. However the financial modalities and intricacies for transfer of the asset needs to be worked out in details and should be mutually agreed upon.
7. ECL, JUSNL and NTPC shall bring the decisions of this meeting to their respective higher authorities and shall convey the consent in writing to ERPC Secretariat within 14.02.2019. If necessary, Jharkhand and ECL shall sit together to develop greater clarity in resolving the issues.
8. Member Secretary ERPC informed that, if ECL and Jharkhand agree on above mentioned points in writing, a committee of experts may be constituted by ERPC for necessary computation.

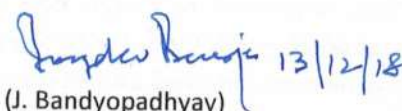
The meeting ended with vote of thanks to the chair.

  
(Dr. M. K. Mishra)  
GM(E &M), ECL

  
(H.P. Joshi)  
GM(OS), NTPC

  
(A. Nayak)  
GM(C &M), JUSNL

  
(T.R. Mohapatra) 13/12/18  
Chief Manager, ERLDC

  
(J. Bandyopadhyay) 13/12/18  
MS, ERPC



ERPC::KOLKATAATTENDANCE SHEETSPECIAL MEETING ON ISSUES OF POWER SUPPLY FROM LALMATIA 220/132KV SUB-STATION

VENUE: ERPC CONFERENCE ROOM, KOLKATA

TIME: 11:00 HRS

DATE: 13.12.2018 (THURSDAY)

Sl. No.	Name	Designation & Organisation	Contact Number	E-mail Id	Signature
1	J. BANDYOPADHYAY	MS, ERPC	9432326351	mserpc-power@gov.in	
2	J. G. Rao	EE, ERPC	9547891353	eseb cea@yahoo.co.in	
3	R. L. Basu	AGM, OP. & Proj.	9936126975	resetdumra@gmail.com	
4	Amar Nayak	G. M. CEM, JUSM	943174762	cetjwme@gmail.com	
5	Shailesh Prakash	DGM (Operation)	9470145226	sldcrandhi@gmail.com	
6	Shri Mohan Jha	Consultant ERPC	9874738913	erpeha@yahoo.co.in	
7	P. P. Jena	AE ERPC	9876198991	ppjena.erp@gov.in	
8	B. SARKAR	ERPC, Consultant	9432065929	bnrha_sarkar@yahoo.co.in	
9	T. R. Mohapatra	CM, ERLDC, POSOCO	9433041673	trmohapatra@posoco.in	
10	Sauvav K. Sahay	Manager, ERLDC	9432013173	sauvav.sahay@posoco.in	
11	G. Ghosh Dastidar	AGM/NTPC	9434039257		
12	H. P. Joshi	Gm (OS) NTPC	9434061325	hpjoshi@ntpc.co.in	
13	Kallol Sarkar	AcM (Cont) NTPC	8902499534	kallolsarkar@ntpc.co.in	
14	S. K. Sharma	AGM (OS), ERI, NTPC	9471008359	sksharma06@eri.co.in	
15	S. Jana	Dy. Mgr (ESM)	9434797102	bsu.subhajyoti@gmail.com	
16	Dr. M. K. Mishra	GM (ESM) - Power	943479625	manas.cmpdi@gmail.com	
17	U. K. Shukla	GM (ESM) / AE (TM) Rajmahal	977144778	ukeyeadm@gmail.com	
18	Raj Pradim	Dy Mgr, ERLDC	9903329591	rajpradim@posoco.in	
19	Lalithari Kumar	Asst. Manager, ERLDC	9831379428	lalithari@posoco.in	
20					
21					
22					
23					



ईस्टर्न कोलफील्ड्स लिमिटेड

(कोल इंडिया का एक अभिन्न अंग)

अध्यक्ष-सह-प्रबंध निदेशक का कार्यालय

सांकतोड़िया, पत्रालय -डिसैरगढ़,

जिला -पश्चिम बर्धमान, पश्चिम बंगाल-713333-

ई एंड एम विभाग

सी .आइ .एन -.U10101WB1975GOI030295

वेबसाइट -[www.easterncoal.nic.in](http://www.easterncoal.nic.in)



EASTERN COALFIELDS LIMITED

Annexure-B5b

(A subsidiary of Coal India Limited)

Office of the Chairman-cum-Managing Director

Sanctoria, P.O.: Dishergarh,

Dist.-Paschim Bardhaman, West Bengal-713333

E&M Department

CIN-U10101WB1975GOI030295

Website- [www.easterncoal.nic.in](http://www.easterncoal.nic.in)

Ref: ECL/HQ/E&M/Power/ HOD/877

Dated: 11.02.2019

To,

The Member Secretary,

Eastern Regional Power Committee

14, Golg Club Road, Tollygunj

Kolkata - 700038

Fax No. 033- 24239652, 24239663

e-mail: mserpc-power@nic.in

**Sub: Handing over the Assets of 220 kV FLTS to JUSNL**

Ref: (i) Your Letter No. ERPC/MS2018/6015-23 Dt. 29.11.2018

(ii) Minutes of the Special Meeting held on 13.12.2018 at ERPC, Kolkata

(iii) Our Letter No. ECL/HQ/E&M/HOD/Power/12-704 Dt. 18/19.12.2018

Dear Sir,

With reference to the Special Meeting held on 13.12.2018 at ERPC, Kolkata with regard to 220 kV Farakka-Lalmatia Transmission Line (FLTS), it is to convey that, the competent authority of ECL has agreed to hand over the entire assets of 220 kV FLTS to JUSNL at some mutually agreed cost taking into consideration the depreciation of the assets (AS IS WHERE IS basis) and the increased utilization of the Farakka- Lalmatia system by Jharkhand over the years for meeting its distribution load.

Vide letter ref. no. (iii), ECL had requested ERPC for computation of cost payable by JUSNL for asset of 220 kV FLTS and for utilization of 220 kV FLTS with arrear.

In this connection, ECL vide letter ref. nos. ECL/HQ/E&M/HOD/Power/12-705 Dt. 18/19.12.2018 to JUSNL and vide letter ref. no. ECL/HQ/E&M/HOD/Power/12-706 Dt. 18/19.12.2018 to JBVNL requested for arranging meeting on the said issue as advised by ERPC.

A meeting was held on 28.01.2019 at JUSNL, Ranchi among JUSNL, ECL and NTPC in which ECL has intimated to JUSNL to hand over the entire assets of 220 kV FLTS to JUSNL at some mutually agreed cost taking into consideration the depreciation of the assets and the increased utilization of the Farakka- Lalmatia system by Jharkhand over the years for meeting its distribution load.

Thanking you.

(H C Ojha),  
GM(E&M)-HOD

Cc: The Managing Director, JBVNL- Engineer's Building, HEC, Dhurwa, Ranchi- 834004.

Cc: The Managing Director, JUSNL- JUSNL Building, Kusai Colony, Doranda, Ranchi, PIN-834002.

Cc: DT (OP)- ECL, for kind information

Cc: DT (P&P) – ECL, for kind information

Cc: DF-ECL, for kind information

Cc: GM (Operation) – NTPC

Cc: GM (T&MS)/ TS to CMD, ECL

Cc: GM (I/C) - Rajmahal Area, ECL

**Record notes of discussions held on 28.01.2019 with M/s ECL and NTPC under chairmanship of Managing Director, JUSNL, Ranchi in the Conference Hall of SLDC Building, Ranchi in respect of transfer of Assets of 220 KV Farakka-Lalmatia System.**

**Members Present:**

**JUSNL**

1. Sri Niranjana Kumar, IP & TAFS, Managing Director, JUSNL, Ranchi
2. Sri Atul Kumar, Director(Project), JUSNL
3. Sri Jai Prakash, ED, JUSNL, Ranchi
4. Sri Amar Nayak, General Manager (C&M,NWBP),JUSNL

**M/s ECL & M/s NTPC**

1. Sri Malay Khunti Jana, DGM/FSTPS
2. Sri Sumit Kumar, AGM/ NTPC
3. Dr. M.K.Mishra, GM (E&M),M/s ECL
4. Sri S.Jana , Dy. Manager (E&M), M/s ECL.

**Managing Director, JUSNL welcomed the representative of M/s ECL & M/s NTPC.**

Sl.No.	Point Discussed	Discussion held on 28.01.2019
1.	<b>Assets of Farkka-Lalmatia system for handing over to JUSNL</b>	<p>M/s ECL in principle agreed to hand over the assets of Farkka-Lalmatia system to JUSNL based on necessary cost computation by ERPC and mutually agreed upon taking into consideration the depreciation of assets and the increased utilization of the 220 kV Farkka- Lalmatia system by Jharkhand for meeting its distribution Load over the years.</p> <p>M/s NTPC informed that they are neither having the expertise to operate &amp; maintain the transmission line nor the transmission license. NTPC reiterated for relieving from O&amp;M responsibility of 220 kV Farkka- Lalmatia system.</p> <p>JUSNL expressed that the proposal of M/s ECL is not agreeable. Being state transmission utility JUSNL is ready for O&amp;M of FLTS system considering the importance of Grid security in the Eastern region on the following two options:-</p> <ol style="list-style-type: none"> <li>(i) M/s ECL agrees to handover the O&amp;M part of the system on the same term &amp; condition as exists with M/S NTPC.</li> <li>(ii) If M/s ECL wants to hand over the entire assets, the cost required for up gradation of the system will have to borne by M/s ECL.</li> </ol> <p>If the above proposal is not accepted by M/s ECL, they may explore for another option as early to avoid system failure in the eastern region due to pathetic condition of the system as observed by protection audit team of ERPC.</p>

The meeting was concluded with vote of thanks.


Sd/-  
General Manager, C&M (Non WB Project)



Memo No...183..... / Ranchi

dated 12-02-19.....

Copy forwarded M/s ECL& M/s NTPC information and necessary action

  
General Manager, C&M (Non WB Project)



पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड

(भारत सरकार का उद्यम)

POWER GRID CORPORATION OF INDIA LIMITED

(A Government of India Enterprise)



पूर्वी क्षेत्र -I क्षेत्रीय मुख्यालय : बोर्ड कॉलोनी, शास्त्री नगर, पटना- 800023 ( बिहार ), दूरभाष : 0612-2283002 ( इपीएबीक्स )  
 Eastern Region -I RHQ. : Board Colony, Shastri Nagar, Patna - 800023 (Bihar), Tel. : 0612-2283002 (EPABX)

CIN : L40101 DL 1989 GOI 038121

Ref: ER-1/PAT/CGM/AM/ 6333

Date: 12.02.2019

To,

The Member Secretary,  
 Eastern Regional Power Committee,  
 14, Golf Club Tollygunj, Kol - 700033.

Sub: Use of Polymer Insulator in Transmission Lines.

Sir,

You may kindly recall that the subject matter was discussed in the 153<sup>rd</sup> OCC meeting held at Kolkata. As desired, we are hereby giving the status of utilization/awards of Polymer Insulator in the Eastern Region-I :-

1) Porcelain Insulator already replaced with Polymer Type:

Sl no	Name of Transmission line	No. of Strings
1	400 kV Patna-Balia-III & IV	5916
2	220 kV Dalkhola Purnea	756
3	400 kV Kahalgaoon- Barh-I (M/C Portion)	1152
4	400 kV Barh-Patna-III & IV	5664

2) Replacement expected in future: Depending upon availability of shutdown from time to time.

3) Polymer Insulator presently lying in stocks.

Item description	Nos. of Strings
400 kV /120 kN	650
400 kV/160 kN	650

4) Polymer Insulator awarded and supply expected in next 6 months: Following Polymer Insulator are under procurement in ER-I.

Item description	Nos. of Strings
400 kV /120 kN	4000
400 kV/160 kN	4000

Contd.....P/2



:: NP-2 ::

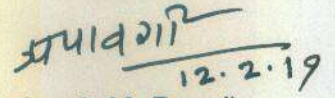
In addition to this, following nos. of strings are under procurement at our corporate level, which shall be utilized as spares in the transmission lines of Eastern Region-I

400 kV		765 kV		800 kV
120 kN	160 kN	120 kN	210 kN	420 kN
9140	20264	500	500	800

Any updates on the above shall be given to you from time to time.

Thanking you,

Yours faithfully,

  
12.2.19

(Avinash M. Pavgi)  
Chief General Manager (AM)

Powergrid ER-II in a communication dated 29/01/2019 informed that in order to avoid frequent de-capping incidents of insulators in the following transmission lines, the replacement works of porcelain insulators by polymer insulators would be undertaken:

- a) 400 kV Malda – Purnea D/C (167 Km)
- b) 400 kV Binaguri – Purnea D/C (168 Km)
- c) 400 kV Andal – Jamshedpur D/C (157 Km)
- d) 400 kV Jeerat – Subhasgram S/C (64 Km)
- e) 400 kV Maithon – Jamshedpur S/C (152 Km)

Extensive Puncture Insulation Detection (PID) test have been carried out in order to assess the condition of the Porcelain Insulators. It has been found that more than 40% Porcelain Insulator discs are defective. Further to the above, replacement works, Powergrid ER – II is also planning to replace insulators already installed by Long Rod Polymer Insulators in all major crossings like Railways / State – National Highways / Power line crossing of 132 kV and above / River Crossing etc. for all the lines under Powergrid ER – II. The stock of Polymer Insulators are available and further, requirement would be expected to be available from the already ordered from Corporate Centre.



पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड  
(भारत सरकार का उद्यम)

POWER GRID CORPORATION OF INDIA LIMITED  
(A Government of India Enterprise)



प्लॉट नं.- 4, युनिट - 41, निलाद्री विहार, चन्द्रसेखरपुर - 751021  
दुरभाष : 0674 - 2720754  
Plot. No. 4, Unit - 41, Niladri Vihar, Chandrasekharpur,  
Bhubaneswar-751021, Tel: 0674-2720754

Ref: ODP/BB/AM/TLM

12517

Date: 24<sup>th</sup> Dec 2018

To

The Member Secretary

Eastern Regional Power Committee

14, Golf Club Road

Tollygunge, Kolkata-700033

Sub: Intimation regarding replacement of Porcelain insulator by Long Rod Polymer Insulator in transmission line of POWERGRID in Odisha

Dear Sir,


During Insulator de-capping, Conductor is grounded and if such incident occurs in crossing span of other transmission line/Railway line/Road/River, consequential effects are much higher. To minimize consequential effects in case of de-Capping the following lines will be provided with Composite Long Road Polymer Insulator for which no incident of de-capping has been reported. Few insulator strings will also be changed in these lines where insulator strings found defective during PID test and also de-capping of porcelain insulator incidents occurred in the past.

The list of the lines for which Long Rod polymer insulators has already been procured and contract has been awarded for replacement work is mentioned as below:

Sl NO	Name of the line	Remark
1	400KV Rourkela-Talcher ckt-1&2	Material has already been procured and contract has been awarded for Installation of Long Rod Polymer insulators. Insulators will be replaced from Jan 2019 to May 2019 in stages after taking due shutdown approval of the lines in OCC.
2	400KV Bolangir-Angul	
3	400KV Jeypore-Bolangir	
4	400KV Jeypore-Indravati	
5	400KV Jeypore-Gazuwaka ckt-1 & 2	

This is for your kind information.

Regards.

  
(R.P. RATH)

Chief General Manager(AM)  
POWERGRID, Odisha Projects

CC: For kind information

1.ED, Odisha Projects

2.ED, ERLDC, POSOCO, Kolkata

पावर सिस्टम ऑपरेशन कॉर्पोरेशन लिमिटेड

(भारत सरकार का उद्यम)

**POWER SYSTEM OPERATION CORPORATION LIMITED**

(A Govt. of India Enterprise)



पंजीकृत एवं केन्द्रीय कार्यालय : प्रथम तल, बी-9, कुतुब इंस्टीट्यूशनल एरिया, कटवारिया सराय, नई दिल्ली-110016

Registered & Corporate Office : 1st Floor, B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi -110016

CIN : U40105DL2009GOI188682, Website : www.posoco.in, E-mail : posocccc@posoco.in, Tel.: 011- 41035696, Fax : 011- 26536901

संदर्भ संख्या: पोसोको/एनएलडीसी/2018/

दिनांक: 09<sup>th</sup> November, 2018

सेवा मे,

Director,  
National Power Committee,  
NRPC Building,  
3<sup>rd</sup> Floor, Katwaria Sarai,  
New Delhi-110016

**(Kind Attn: Sh. Irfan Ahmad)**

**विषय:** Agenda Note on National Energy Account & National Deviation Pool Account for 8<sup>th</sup> Meeting of National Power Committee.

**संदर्भ:** NPC letter no: 4/MTGS/NPC/CEA/2018/1122-1123 dtd. 01<sup>st</sup> Nov, 2018

महोदय,

With reference to the above mentioned NPC communication dated 01<sup>st</sup> November 2018, an Agenda note on National Energy Account & National Deviation Pool Account for the forthcoming 8<sup>th</sup> Meeting of National Power Committee is enclosed.

सादर धन्यवाद,

भवदीय,

*समीर सक्सेना*

09/11/18.

(एस. सी. सक्सेना)

उप महाप्रबंधक (एन एल डी सी)

Encl: As above

**Copy to:** Chief Engineer, National Power Committee, NRPC Building, 3<sup>rd</sup> Floor,  
Katwaria Sarai, New Delhi-110016

**National Energy Account & National Deviation Pool Account**  
*Agenda Note for 8<sup>th</sup> Meeting of the National Power Committee (NPC)*  
*30<sup>th</sup> November 2018, Guwahati*

**1. Establishment of National Grid**

In the sixties, the country's electricity grid was demarcated into five electrical regions and Regional Electricity Boards were formed. In order to facilitate inter-state power transactions and the development of regional grids, Govt. of India funded construction of a number of inter-state lines. Subsequently multi-beneficiary Central Sector generating stations were developed by utilities like NTPC, NHPC etc. along with associated transmission system for evacuation of power. The concept of regional energy accounting (earlier known as global accounting) was developed with boundary metering of all control areas.

Till late nineties, power system was planned on regional self-sufficiency basis and there were very few inter-regional links. With more and more inter-regional inter-connections coming up, the focus now shifted to formation of a strong National Grid. Initially, HVDC was used to interconnect two regions, e.g., NR-WR, NR-ER, WR-SR, etc. Gradually, AC interconnections also came up and by August 2006, all regional grids except SR were interconnected synchronously into two synchronous systems known as NEW and SR Grids. The strong HVDC links connecting the NEW grid to Southern region are extensively used for optimizing power flows in the NEW grid. With strong AC connections between the regions constituting the NEW grid as well as extensive use of HVDC links in real time operation, inter-regional schedules lost any physical relevance. All the five regional grids in the country were progressively interconnected using AC links and these are now operating as one synchronism system since December 2013. The situation has become more complicated with direct HVDC connections between NER and NR.

**2. Existing Scheduling, Metering, Accounting and Settlement Systems**

Availability Based Tariff (ABT) was implemented in stages, starting with Western Region in July 2002. With implementation of ABT, the concept of Unscheduled Interchange (UI) pool came up and all RLDCs started operating regional UI pool accounts, which were subsequently known as the "Regional Deviation Accounts". Deviations from the schedules are computed using the net injection/drawal for using boundary metering for each control area. Based on deviations from schedule, utilities pay UI charges to or receive UI charges from the regional UI pool account.

Short-term open access in inter-state transmission was introduced in May 2006 and with this, scheduling of market-based trades/transactions also commenced. Further, in 2008, multiple Power Exchanges were also implemented. Corridor wise margin declaration for market-based transactions was carried out along with net import/export capability for regions for administering the short-term open access transactions. Later from 2009 onwards, long-term and medium-term transactions also commenced within one region and between different regions. Corresponding scheduling on the inter-regional links was carried out for these transactions on a corridor-wise basis e.g., WR-NR, ER-SR, etc. Presently, while corridor wise TTC/ATC are being declared, net import/export margins for the region are being used for administration of short-term transactions.



Special energy meters have been installed at both ends of inter-regional / inter-state tie lines and all inter-connections of CTU system with ISGS as well as states / other entities whose accounting is done at regional level. As specified in the IEGC, meter readings are sent to respective RLDCs by different sub-stations of CTU / ISGS / states. The meter readings are processed at RLDCs and forwarded to respective RPC secretariat for preparation of weekly deviation account. The RPC secretariats issue deviation accounts based on which different utilities pay /receive deviation charges to / from deviation pool account. These also included settlement of inter-regional deviations between neighboring regions. The regional UI pools are being operated satisfactorily and have successfully served the purpose for the last many years.

The deviation rate vector is declared upfront by the CERC from time to time. Prior to 2008, with uniform rates for deviation, the total payable and receivables were supposed to be equal making it a zero-sum game. However, due to difference in estimated loss and actual loss as well as metering errors, total UI/deviation charges payable did not match with total UI/deviation charges receivable. Based on methodology decided in RPC forum, suitable adjustment is done to make total UI charges payable equal to the UI charges receivable. Thus, the UI pool accounts had been zero balance accounts traditionally since introduction of ABT up to 2008.

Regional UI pool accounts became a non-zero sum game since 7<sup>th</sup> January 2008 with introduction of UI rate cap for Central generating stations with coal or lignite firing and stations burning only APM gas. UI rate cap was retained in the UI regulations, 2009. Further, as per the UI regulations, 2009, additional UI charge is payable by over-drawing or under-injecting utilities based on specified volume limits and frequency bands. Thus a surplus is generated in the UI/deviation pool.

An important feature of the UI accounts issued by RPCs is treatment of inter-regional transactions. The following methodology is followed by the RPCs in this regard:

- No adjustment is done in UI charges payable to / receivable from other regions (otherwise this may lead to an iterative process)
- UI charges payable to other regions has highest priority i.e. UI charges received in UI pool account is used first to clear dues to other regions.

Schedules are reconciled between RLDCs and thereafter final schedules are issued. Moreover, same meter readings are used by both connected regions for computation of UI/deviations. Hence it is expected that normally there should not be any mismatch between UI charges payable / receivable by adjacent regions connected through AC links.

At present, RPCs of each region prepare and issue UI/deviation accounts considering neighboring region as control areas (similar to states within the region). Sometimes, there are cases of mismatch between UI/deviation payable/receivable as per accounts issued by two RPCs of adjacent Regions and reconciliation of accounts by RPCs prior to issuance is required to be done.

Settlement of UI/deviation charges is done between the regions on one to one basis. For example, UI/deviation pool of ER has to pay to or receive from 4 different UI pools (NER, NR, SR, WR). This leads to multiple financial transactions in terms of money flow between regions. There are



instances of circular flows of funds between regions which needs to be avoided. An example of such circular flow of funds between the regions is illustrated in Annex – 1.

The above methodology is gradually losing its relevance with the five regions connected synchronously as power can flow from one region to another via a third region leading to circular and multiple fund transactions. These ‘tandem’ money transactions between the regions at times also leads to issues in disbursal within the regions.

### 3. Mandate for NLDC

Section 26 of Electricity Act, 2003 mandates the following:

*“Section 26. (National Load Despatch Centre): --- (1) The Central Government may establish a centre at the national level, to be known as the National Load Despatch Centre for optimum scheduling and despatch of electricity among the Regional Load Despatch Centres.*

*(2) The constitution and functions of the National Load Despatch Centre shall be such as may be prescribed by the Central Government:*

*Provided that the National Load Despatch Centre shall not engage in the business of trading in electricity.*

*(3) The National Load Despatch Centre shall be operated by a Government company or any authority or corporation established or constituted by or under any Central Act, as may be notified by the Central Government.”*

Subsequently vide notification dated 2<sup>nd</sup> March 2005, the Central Government has notified National Load Despatch Centre Rules 2004, which prescribes functions of NLDC. The functions include following (relevant extracts):

- *Scheduling and dispatch of electricity over inter-regional links in accordance with grid standards specified by the Authority and Grid Code specified by the Central Commission in coordination with Regional Load Despatch Centres.*
- *Coordination with Regional Load Despatch Centres for achieving maximum economy and efficiency in the operation of National Grid.*
- *Supervision and control over the inter-regional links as may be required for ensuring stability of the power system under its control*
- *Coordination with Regional Load Despatch Centres for the energy accounting of inter-regional exchange of power*
- *Coordination for trans-national exchange of power*

From the above mandate it is evident that just as the RLDCs/RPCs are responsible for scheduling, metering, accounting and settlement at the Regional level, NLDC has been made responsible at the inter-regional and trans-national levels. The corresponding roles pertaining to inter-regional and trans-national transactions accounting and settlement need to be taken up at the National level by the NLDC and NPC.

### 4. Trans-National/Cross-Border Interconnections

At present, India has cross-border interconnections with Nepal, Bhutan, Bangladesh and Myanmar. Briefly, the connectivity of these countries with various regional grids in India is as follows:

- Nepal: With Northern region and Eastern Region
- Bhutan: With Eastern region
- Bangladesh: With Eastern region and North-Eastern region
- Myanmar: With North-Eastern region

In future, other neighboring SAARC countries like Bangladesh and Pakistan may have connectivity with two different regions of India. For the purpose of cross-border interconnections, the country needs to be treated as a single control area for the purpose of transnational exchanges and transactions have to be reconciled on National basis. Further, in line with the mandate provided, NLDC is responsible for all trans-national exchanges.

## 5. Changing Scenario & Increasing Complexities

A vibrant electricity market is functioning in the country and many regulatory changes have been implemented to address new challenges from the changing scenario which is also leading to increased complexities. Some of the significant changes that have already been implemented at the National level and some future challenges are briefly discussed below.

- Collective Transactions through Power Exchanges:** Open Access Regulations, 2008 issued by CERC paved the way for functioning of power exchanges. As per the Regulations and procedures issued pursuant to the Regulations, collective (i.e. power exchange) transactions are coordinated by NLDC. Two Power Exchanges are functioning at present and another is in the offing. NLDC accepts scheduling request for collective transactions after checking for congestions, and forwards the same to RLDCs for scheduling. Curtailment, if any, has to be done by NLDC in coordination with RLDCs. Accounting and settlement of the Collective Transactions is carried out by NLDC.
- Ancillary Services (RRAS):** The Regulatory Framework for implementation of Ancillary Services has been provided by the Hon'ble CERC in August 2015 and these have been implemented from April 2016. As per the present framework for ancillary services, available generation (thermal) reserves are dispatched by NLDC across regions on a pan-India basis. In the scheduling process, a virtual entity has been created in each regional pool to act as a counterparty to the ancillary schedules (beneficiaries schedules are not disturbed in the ancillary despatch process). Settlement of ancillary transactions is carried out on a regional basis from the DSM Pool. There are times, when the regional DSM pool faces shortfall and NLDC facilitates transfer of funds from a surplus regional pool to the deficit regional pool as per the provisions of the relevant CERC regulations. Again, this involves multiple fund transfers at times.
- Fast Response Ancillary Services (FRAS):** CERC vide suo-motu order dated 16<sup>th</sup> July 2018 has directed the implementation of FRAS and pilot project for 5-minute metering. The framework for FRAS provides for fast response ancillary services using the flexibility of hydro generation. The dispatch under FRAS is with the primary objective of obtaining regulation services from hydro while at the same time honoring all the hydro constraints. Scheduling, accounting and settlement of FRAS is to be carried out by NLDC across multiple regions (NR, ER and NER).

(d) **Secondary Frequency Control through Automatic Generation Control (AGC):** Based on the directions of CERC a pilot project for AGC has been implemented at Dadri – Stage II in January 2018. The AGC signals are being sent to the generating station from NLDC and the accounting and settlement for the AGC is being facilitated by NLDC. Based on the experience gained by this pilot project, AGC implementation is being taken up at one generating station in each of the other regions. A second pilot implementation of AGC is expected to be commissioned at Simhadri in November 2018. Implementations in other regions are also coming up progressively. Accounting and settlement of all such implementations have to be facilitated at the national level.

(e) **Proposals under various stages of implementation/deliberations:** Some of the other proposals which are under various stages of deliberations or implementation are as follows:

- Replacement of thermal generation by RE generation (Ministry of Power, April 2018)
- Real Time Markets (CERC, July 2018) for facilitating balancing closer to the time of delivery
- Flexibility in scheduling of thermal generation (Ministry of Power, August 2018) to achieve economy in despatch at the national level
- Security Constrained Economic Despatch (POSOCO, September 2018) to achieve economy in despatch at the national level

Almost all of the above-mentioned proposals are intended for scheduling, despatch, accounting and settlement at the national level. The complexity in settlement needs to be streamlined at the national level keeping in view the changing paradigm and new challenges.

## **6. National Energy Account and National Deviation Pool Account**

In order to streamline the accounting and settlement at the national level there is a need for implementing a National Deviation Pool based on the National Energy Account. In this regard, the following methodology is proposed.

(a) **Scheduling:** Corridor-wise (e.g., ER-NR, etc.) scheduling of inter-regional transactions is presently being carried out. However, actual power flows as per the laws of physics. In case of collective transactions, one to one correspondence of source and sink is not there and scheduling on a particular inter-regional corridor may at best be notional. Hence, there is a need to migrate to scheduling inter-regional transactions on a net basis for each region. However, while accepting the transactions for scheduling, corridor-wise TTC/ATC/available margin etc. may be duly taken care of. Inter-regional corridor-wise schedules may also be continued based on the physical power flow patterns as the same is useful for grid security monitoring and checking for any discrepancies. NLDC shall communicate the net inter-regional schedules to the NPC for the purpose of accounting.

Schedules for cross-border transactions shall also be prepared by NLDC on a net-basis to facilitate accounting of cross-border transactions by the NPC. However, individual schedules of

the concerned neighboring country with different region regions shall also be continued at RLDC level for the purpose of grid security monitoring and checking for discrepancies.

- (b) **Metering:** The existing practice for metering of the inter-regional points shall continue as per the IEGC and the SEM data shall be collected by the RLDCs, processed and made available to the RPCs. In addition, the processed meter data shall also be made available to the NPC through NLDC. A similar practice shall be adopted for the cross-border metering locations, where the processed meter data shall be provided by the respected RLDCs to the RPCs and NPC (through NLDC).
- (c) **Accounting & Settlement:** Based on the scheduling and meter data provided, NPC shall prepare the National Energy Account (NEA) including the National Deviation Account for the inter-regional and trans-national transactions. The NEA will reflect the payables/receivables for each region on a net-basis and this amount shall be payable/receivable to the National Deviation Pool Account which shall be operated by NLDC. The NEA shall also reflect the cross-border or trans-national transactions and the neighboring countries shall be paying/receiving to/from the National Deviation Pool Account operated by NLDC. Payment to the National DSM Pool shall have the highest priority.

In the future, multi-lateral transaction between neighboring countries are also envisaged under the SAARC framework e.g., Bangladesh may purchase power from Nepal or Bhutan through India. Neighboring countries may also participate in a designated Power Exchange for cross-border transactions in the future. For scheduling and settlement of such transactions, the all-India loss figures would need to be declared upfront by NLDC.

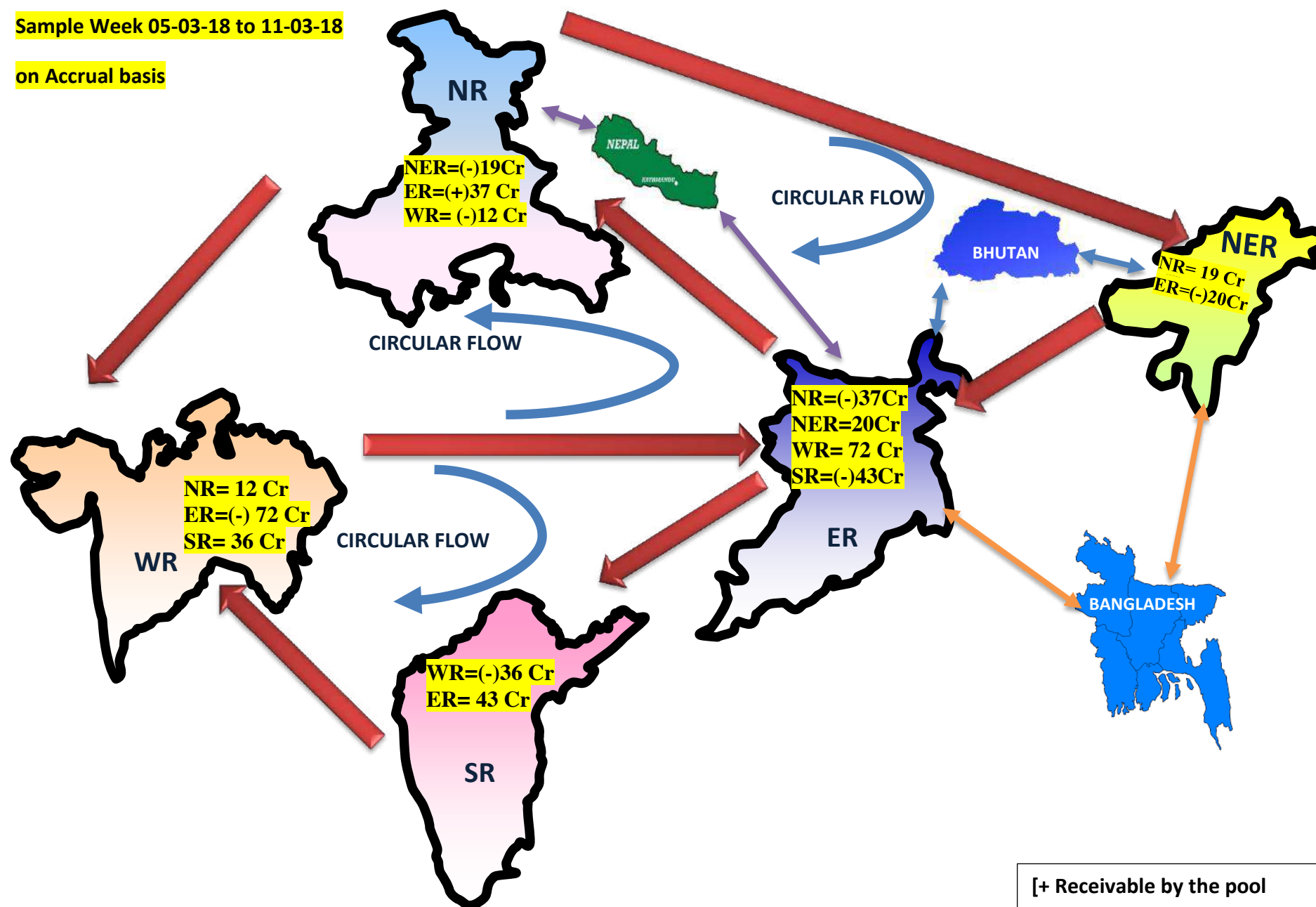
- (d) **Handling Surplus/Deficit in Regional Pool Accounts and transfer of residual to PSDF:** As has already been mentioned above, sometimes the regional DSM pool may face shortfalls on account of disbursements for reliability support such as RRAS, FRAS, AGC, etc. in accordance with the relevant regulations of CERC. Once the National DSM Pool becomes operational, all residual/surplus amount in the regional DSM pools shall be transferred to the National DSM pool account. The NPC accounts would also facilitate the transfer of funds from the surplus available in the National DSM pool to the deficit regional DSM pool accounts as a single transaction thereby simplifying the process. Once all liabilities have been met, any residual in National DSM Pool shall be transferred periodically to the PSDF in accordance with the extant CERC Regulations.

A sample illustration of the flow of funds between different regional DSM pool accounts to the national DSM pool account and that with the neighboring countries is shown at Annex – II.

Suitable changes/modifications are required to be carried out in the IEGC and DSM Regulations and the functions of NPC also need to be recognized in the regulatory framework.

Sample Week 05-03-18 to 11-03-18

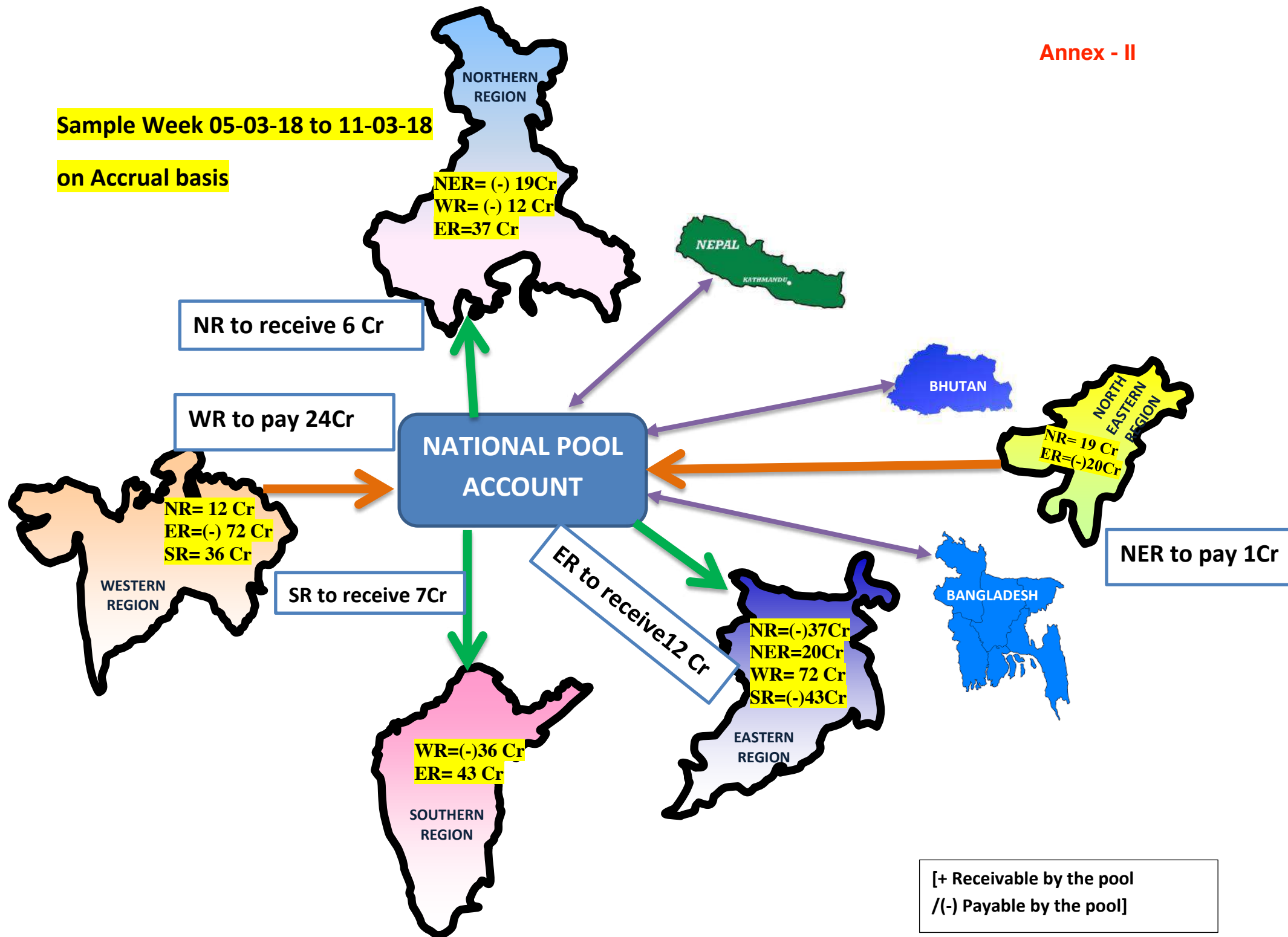
on Accrual basis



## Annex - II

Sample Week 05-03-18 to 11-03-18

on Accrual basis





भारत सरकार  
Government of India  
विद्युत मंत्रालय  
Ministry of Power  
पूर्वी क्षेत्रीय विद्युत समिति

Annexure-B10



**Eastern Regional Power Committee**

14, गोल्फ क्लब रोड, टॉलीगंज, कोलकाता-700033  
14 Golf Club Road, Tollygunj, Kolkata-700033

Tel No.:033-24239651, 24239657 FAX No.:033-24239652, 24239653 Web: [www.erpcc.gov.in](http://www.erpcc.gov.in)

No: ERPC/COM - I/non - ISTS/2019/ 8986-87

Date: 11.02.2019.

To  
**The Executive Director,**  
Eastern Region Load Despatch Centre,  
14, Golf Club Road,  
Tollygunge,  
Kolkata - 700033.

**Sub: Certification of non -ISTS lines of OPTCL System carrying ISTS Power - Reg.**

**Ref:** This office letter No. : ERPC/COM - I/non - ISTS/2018/6809-10 dated 19.12.2018.

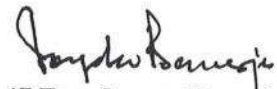
Dear Sir,

With above subject and reference, it is intimated that this office has received a reminder from OPTCL regarding the certification of the non - ISTS lines of OPTCL System carrying ISTS power. A copy of the letter received from OPTCL is attached. It is requested that necessary studies may please be got carried out at your end and forwarded to ERPC Secretariat, so that the same can be put up in the coming Commercial Committee Meeting and OCC Meeting.

Thanking you,

Yours faithfully,

Encl: As above.

  
(J.Bandyopadhyay)  
Member Secretary

Copy to: Sr. General Manager (RT&C), OPTCL, Janpath, Bhubaneshwar - 751022.



**Minutes of the Special meeting on "Issue of Methodology of segregation of Actual Generation of NTPC Kahalgaon stage-I & II after Bus Splitting Scheme" held on 04.03.2019 at ERPC, Kolkata**

NTPC, POWERGRID, ERLDC and ERPC participated in the meeting. List of the participants is attached in Annexure-A.

SE, ERPC welcomed the participants. He informed that the meeting has been convened in compliance with the decision in the 39<sup>th</sup> Commercial Committee meeting held on 18<sup>th</sup> February, 2019 at ERPC, Kolkata. He informed that the existing methodology of calculation of actual generations of Kahalgaon Stage-I & II need to be reviewed on account of bus splitting operation of the Kahalgaon STPS.

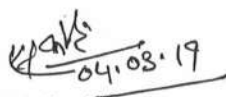
As per existing methodology, all the outgoing feeders from 400 kV Kahalgaon station including the 132 kV feeders are summed up and then apportioned on the basis of GT ratio to determine the actual generation of stage I & II. It was informed by ERLDC that the auxiliary consumptions of both the stages are supplied from 132 kV Bus of 2X200 MVA 400/132 kV ICTs. NTPC informed that both the 400/132 kV ICTs are connected to the stage-I after bus splitting operation.

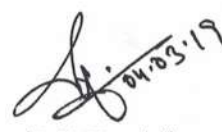
The methodology to determine the actual generation for both the stages was discussed and the methodology as finalised is given below:

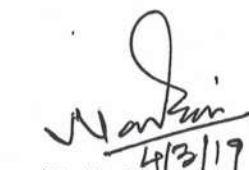
1. NTPC informed that the Station auxiliaries for both the Stages are met from five(5) nos. of Station transformers. Apart from this, there are other loads like Make up water & colony load. All these loads including Station auxiliaries are being met through Transformers on the Stage-I side.
2. NTPC representative further added that ST- 1& 2 are dedicated for meeting station auxiliary loads of Stage-I whereas ST-3, ST-4 & ST-5 are dedicated for meeting station auxiliary loads of Stage-II. He also confirmed that there is no interconnectivity between the Station Transformers of both the stages.
3. ERLDC informed that for calculation of actual generation four (4) more meters will be required at either side of bus sectionalizer i.e. two for Bus-I & two for Bus-II and the polarity needs to be taken care of. NTPC & PGCIL was advised to ensure that meters are in place.
4. Bus sectionalizer shall act as tie between the stages and the power exchange between two stages shall be accounted for by taking readings of the meters installed at either side of bus sectionalizer into consideration.
5. Taking above submissions of NTPC & ERLDC into consideration, it is decided to first calculate ex-Bus sent out from all the outgoing feeders from both the stages including power flow through bus sectionalizer separately.
6. Next, the readings of ST-3, 4 & 5 would be added to the ex-bus sent out energy of Stage-I and subsequently the same will be subtracted from ex-bus sent out energy of Stage-II.
7. Other loads i.e. make up water, colony loads, etc would be apportioned in the ratio of GT readings and the same shall be calculated for Stage-II. Finally, this would be added to the ex-bus sent out energy of Stage-I to give the actual ex-bus sent out of Stage-I and the same will be subtracted from ex-bus sent out energy of Stage-II to give the actual ex-bus sent out of Stage-II.

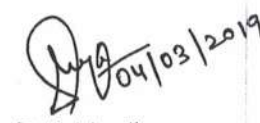
NTPC was advised to submit the following:

- Approved SLDs of downstream network of 132 kV side.
- Details ( including CT, PT, Sl. no.) of meters installed at either side of bus sectionalizer and HV side of Transformers feeding make up water loads

  
(S. K. Singh)  
Sr.GM(AM), PGCIL, ER-I

  
(R. K. Mandal)  
AGM(EEMG), NTPC

  
(Nadim Ahmad)  
Chief Manager, ERLDC

  
(S. Kejriwal)  
SE, ERPC



24. Despite the fact that other Respondents have not raised objection to COD claimed by the Respondents, it is clear (paragraph 16) that trial run of the Unit did not comply with provisions of the 2014 Tariff Regulations. Subsequent trial run of 3-5 November, 2014 too could not demonstrate compliance with the 2014 Tariff Regulations. Neither could it be possible for trial run during 11-15 November, 2014. Thus, even though other Respondents have accepted COD as stated by the Respondent No. 1, it is not fully correct.

**Issue No. 4: What should be the COD for unit of the generating station:**

25. In the light of above discussion, it is evident that the unit has successfully run on full load for 72 hours in March, 2016 for the first time though the Petitioner declared the date of the commercial operation as 15.11.2014. However, the beneficiaries have been scheduling and making payment since declaration of the COD of the unit. Except GRIDCO (share of 15%), other beneficiary have not raised their objections to the declaration of COD of the unit as 15.11.2014. However, it is clear that though the unit of the generating station demonstrated the super critical parameters, it could attain the full load only in 29 time blocks and more than 95% load only in 183 time blocks out of total 258 time blocks, during August, 2014. Similarly, during trial run for synchronization during 3-5 November, 2014 for 179 time blocks, the Unit could run on full load or above for only 46 time blocks (discontinuous pattern) and more than 95% load for only 111 time blocks.

26. It is also observed from the data submitted by NTPC that the unit operated at an average load of 615 MW ( 93.22% PLF) including the extended trial run after the brief

outage on account of spurious tripping and excluding the outage period and ramp up period as stated by Respondent No. 1. Post COD, as declared by Respondent No. 1, the Unit couldn't be operated at full load continuously for 2-3 days due to less power requisition from the beneficiaries. However, the unit demonstrated successful trial run at MCR during the period from 4.3.2016 to 7.3.2016. Though it is a fact that various beneficiaries have scheduled and availed the power generated by the unit, the Unit had not demonstrated its capacity to run at required capacity as required under provisions of the 2014 Tariff Regulations. It is possible that the unit was capable of delivering rated capacity since it was able to achieve normative availability of 83% in the financial year 2014-15 and more than 90% in 2015-16 (till February, 2016). Since, trial run did not achieve required capacity, we are not inclined to accept COD of 15.11.2014 as claimed by the Respondent No. 1. We are also not inclined to exercise our powers to relax the provisions under Regulation 54 of the 2014 Tariff Regulations as there is no case made out for the same. Accordingly, COD of 15.11.2014 as declared by Respondent No. 1 is set aside.

27. The Hon'ble Supreme Court vide its judgment dated 8.12.2016 in Civil Appeal Nos. 5881-5882 of 2016 (AIPEF & Ors. Vs. Sasan Power Limited & Ors.) had expressed concerns on waiver of condition of achieving 95% of capacity for COD declaration.

28. Power injected by Respondent No. 1 in respect of the Unit before 8.3.2016 shall be treated as infirm power even though power was scheduled by the beneficiaries

during the period. The revenue earned over and above fuel cost from sale of infirm power from 15.11.2014 to 7.3.2016 shall be adjusted in the capital cost.

29. The Petition No. 130/MP/2015 along with IA No. 67 of 2017 is disposed of in terms of the above.

Sd/-  
**(Dr. M.K. Iyer)**  
**Member**

sd/-  
**(A.S. Bakshi)**  
**Member**

sd/-  
**(A.K. Singhal)**  
**Member**

sd/-  
**(Gireesh B. Pradhan)**  
**Chairperson**



भारत सरकार  
Government of India  
विद्युत मंत्रालय  
Ministry of Power  
पूर्वी क्षेत्रीय विद्युत समिति  
**Eastern Regional Power Committee**  
14, गोल्फ क्लब रोड, टॉलीगंज, कोलकाता-700033  
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Tel No.:033-24239651, 24239657 FAX No.:033-24239652, 24239652 Web: [www.erpc.gov.in](http://www.erpc.gov.in)

No: ERPC/COM - I/REA/ 2018/ 3682-3700

Date: 11.01.2018.

12

FAX MESSAGE NO. – 17

**From: Member Secretary, ERPC, Kolkata.**

**To: (As per list.)**

CERC in its order dated 20.09.2016 in the Petition No. 130/MP/2015 along with I.A. No. 67/2017 has set aside the COD of 15/11/2014 in respect of unit – IV of Barh Super Thermal Power Station Stage – II (660 MW) and has fixed 08/03/2016 as the revised date of COD.

Accordingly, the REA, DSM and RTA for the period from 15.11.2014 to 07.03.2016 has been revised and given in Annexure – I, II & III respectively for kind information and necessary action by all concerned.

Regards,

*Jaydev Bandyopadhyay* 11/01/18  
(J.Bandyopadhyay)  
Member Secretary

## **DISTRIBUTION LIST:**

### **BIHAR**

1. Chief Engineer, Transmission (O&M), BSPTCL, Vidyut Bhavan, Bailey Road, Patna-800021 (Fax 0612-2504557/2227557)
2. ESE (Interstate), BSEB, Vidyut Bhavan, 3<sup>rd</sup> Floor, Bailey Road, Patna-800 021. (Fax 0612-2504557)

### **JHARKHAND**

1. CE (Comml & Revenue), JBVNL, Engineering Building, H.E.C. Township, Dhurva, Ranchi-834004, Jharkhand . (Fax : 0651-2490486 / 2400799)
2. GM-cum-CE (Trans), JSEB, Kusai Colony, Duranda, Ranchi, Jharkhand (Fax:0651-2490486)

### **ODISHA**

1. Sr. GM(PP), GRIDCO, 4<sup>th</sup> floor, Vidyut Bhawan, Janpath, Bhubaneswar-22. (Fax : 0674-2547180/2547261)
2. Sr. GM (PS), OPTCL, SLDC Bldg, PO Mancheswar Rly Colony, Bhubaneswar-17. (Fax: 0674-2748509)
3. Regional Executive Director (East-II), 3<sup>rd</sup> Floor, OCHC Building (New), 24, Janpath, Bhubaneswar - 751001 (Fax No. 0674-2394857)
4. Chief General Manager (RT & C), OPTCL, Janpath, Bhubaneswar-751022. (Tel FAX-0674 2542 120)

### **SIKKIM**

1. CE (Trans.), Deptt. Of Power, Govt. of Sikkim, Gangtok.-737 101 (Fax: 03592-201148 / 202927)
2. Addl. Chief Engineer (SLDC/EHV), Deptt. of Power, Govt. of Sikkim, Kazi Road, Gangtok-737101 (FAX:03592 202927/209199)

### **WR (MP)**

1. Chief Engineer (Commercial), M.P. Power Management Co. Ltd., Shakti Bhawan, Vidyut Nagar, Rampur, Jabalpur-482008 (Fax No. 0761-2661884)
2. Member Secretary, WRPC, MIDC Area, Marol, Andheri(E), Mumbai-400093 (Fax : 022 2837 0193 ).

### **NTPC**

1. GM (Comml), NTPC Ltd, 7 Institutional Area, Lodhi Road, New Delhi-3 (Fax: 011-24360318 / 24368417)
2. AGM (Comml), NTPC Ltd, Loknayak Jaiprakash Bhawan, 2<sup>nd</sup> floor, Dak Banglow Chowk, Fraser Road, Patna-800 001. (Fax : 0612-2230035 / 2224287, 2211807 )

### **PGCIL**

1. AGM (Comml.), PGCIL, "Saudamini", Plot No.2, Sector -29, Gurgaon-122001, Haryana (Fax : 0124-2571760)
2. Addl. General Manager (Commercial), ERTS-I, POWERGRID, Boring Road, Alankar Place, Patna-800001. (FAX: 0612 2234097/2228984)

### **NLDC/RLDC**

1. ED-NLDC, POSOCO, B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi-16 (Fax:01126524525)
2. GM, WRLDC, MIDC Area, Marol, Andheri (E), Mumbai-490093 (Fax: 022-28235434)
3. ED, ERLDC, 14 Golf Club Road, Tollygunge, Kolkata-33 (Fax: 033-24235809, 2423 3648)



**REVISED REGIONAL ENERGY ACCOUNTING FOR BARH STPS STAGE-II FROM NOVEMBER,2014 TO MARCH,2016  
(CAPACITY CHARGES, INCENTIVE, IF ANY & ENERGY CHARGES BILLING)**

Month	Beneficiaries	Share Allocation	Previous Capacity Charges Payable(As per REA published)	Current capacity charges payable (Revised REA)	Capacity Charges to be Refunded to Beneficiaries	Previous Drawal Schedule (As Per REA published)	Current Drawal Schedule(Revised REA)	Difference in Drawal Schedule(Energy Charges to be Refunded to Beneficiaries)
		(%)	(Rs.)	(Rs.)	(Rs)	(MWH)	(MWH)	(MWH)
Nov,14	BIHAR	65.080000	225527082	0.0000	225527082	106978.08200	0.00000	108978.08200
	JHARKHAND	6.060000	21000217	0.0000	21000217	10548.73900	0.00000	10548.73900
	ODISHA	12.570000	43559856	0.0000	43559856	15552.25800	0.00000	15552.25800
	SIKKIM	1.290000	4470343	0.0000	4470343	2264.68200	0.00000	2264.68200
	MADHYA PRADESH	15.000000	51980735	0.0000	51980735	0.00000	0.00000	0.00000
Dec,14	BIHAR	67.673321	299089017	0.0000	299089017	157074.69700	0.00000	157074.69700
	JHARKHAND	6.301480	27850022	0.0000	27850022	14923.57000	0.00000	14923.57000
	ODISHA	13.070892	57768116	0.0000	57768116	20654.45400	0.00000	20654.45400
	SIKKIM	1.341404	5928469	0.0000	5928469	3083.04400	0.00000	3083.04400
	MADHYA PRADESH	11.612903	51324387	0.0000	51324387	0.00000	0.00000	0.00000
Jan,15	BIHAR	76.564706	587142025	0.0000	587142025	275636.55500	0.00000	275636.55500
	JHARKHAND	7.129412	54672415	0.0000	54672415	28149.72400	0.00000	28149.72400
	ODISHA	14.788235	113404657	0.0000	113404657	7737.11300	0.00000	7737.11300
	SIKKIM	1.517647	11638187	0.0000	11638187	4854.72500	0.00000	4854.72500
Feb,15	BIHAR	76.564706	651831026	0.0000	651831026	269763.03800	0.00000	269763.03800
	JHARKHAND	7.129412	60696007	0.0000	60696007	18116.13700	0.00000	18116.13700
	ODISHA	14.788235	125899137	0.0000	125899137	8317.27400	0.00000	8317.27400
	SIKKIM	1.517647	12920436	0.0000	12920436	184.72000	0.00000	184.72000
Mar,15	BIHAR	76.564706	704084000	0.0000	704084000	332094.87900	0.00000	332094.87900
	JHARKHAND	7.129412	65561604	0.0000	65561604	17647.25000	0.00000	17647.25000
	ODISHA	14.788235	135991636	0.0000	135991636	7049.18600	0.00000	7049.18600
	SIKKIM	1.517647	13956182	0.0000	13956182	285.94200	0.00000	285.94200
Apr,15	BIHAR	76.564706	306012356	0.0000	306012356	146310.18177	0.00000	146310.18177
	JHARKHAND	7.129412	28494698	0.0000	28494698	3875.54942	0.00000	3875.54942
	ODISHA	14.788235	59105335	0.0000	59105335	5613.95731	0.00000	5613.95731
	SIKKIM	1.517647	6065703	0.0000	6065703	705.78294	0.00000	705.78294
May,15	BIHAR	76.564706	618956902	0.0000	618956902	302179.75226	0.00000	302179.75226
	JHARKHAND	7.129412	57634895	0.0000	57634895	2768.03184	0.00000	2768.03184
	ODISHA	14.788235	119549602	0.0000	119549602	6428.57607	0.00000	6428.57607
	SIKKIM	1.517647	12268813	0.0000	12268813	708.85497	0.00000	708.85497
June,15	BIHAR	76.564706	642378699	0.0000	642378699	284145.32830	0.00000	284145.32830
	JHARKHAND	7.129412	59815843	0.0000	59815843	7931.49725	0.00000	7931.49725
	ODISHA	14.788235	124073449	0.0000	124073449	13798.58945	0.00000	13798.58945
	SIKKIM	1.517647	12733074	0.0000	12733074	363.76322	0.00000	363.76322
July,15	BIHAR	76.564706	652884624	0.0000	652884624	279450.47652	0.00000	279450.47652
	JHARKHAND	7.129412	60794114	0.0000	60794114	13771.79637	0.00000	13771.79637
	ODISHA	14.788235	126102636	0.0000	126102636	29863.79205	0.00000	29863.79205
	SIKKIM	1.517647	12941320	0.0000	12941320	1368.73657	0.00000	1368.73657
Aug,15	BIHAR	76.564706	588703170	0.0000	588703170	301499.63595	0.00000	301499.63595
	JHARKHAND	7.129412	54817783	0.0000	54817783	20565.44646	0.00000	20565.44646
	ODISHA	14.788235	113706188	0.0000	113706188	23329.86771	0.00000	23329.86771
	SIKKIM	1.517647	11669131	0.0000	11669131	1102.13943	0.00000	1102.13943
Sept,15	BIHAR	76.564706	561787150	0.0000	561787150	323481.50868	0.00000	323481.50868
	JHARKHAND	7.129412	52311466	0.0000	52311466	29015.61987	0.00000	29015.61987
	ODISHA	14.788235	108507442	0.0000	108507442	6961.22535	0.00000	6961.22535
	SIKKIM	1.517647	11135608	0.0000	11135608	1668.06700	0.00000	1668.06700
Oct,15	BIHAR	76.564706	561787150	0.0000	561787150	313121.95818	0.00000	313121.95818
	JHARKHAND	7.129412	52311466	0.0000	52311466	21728.43208	0.00000	21728.43208
	ODISHA	14.788235	108507442	0.0000	108507442	6956.55040	0.00000	6956.55040
	SIKKIM	1.517647	11135608	0.0000	11135608	1565.94612	0.00000	1565.94612
Nov,15	BIHAR	76.564706	561787150	0.0000	561787150	273379.99962	0.00000	273379.99962
	JHARKHAND	7.129412	52311466	0.0000	52311466	24521.74265	0.00000	24521.74265
	ODISHA	14.788235	108507442	0.0000	108507442	21516.18991	0.00000	21516.18991
	SIKKIM	1.517647	11135608	0.0000	11135608	1248.75789	0.00000	1248.75789
Dec,15	BIHAR	76.564706	561787150	0.0000	561787150	285465.33450	0.00000	285465.33450
	JHARKHAND	7.129412	52311466	0.0000	52311466	26047.77536	0.00000	26047.77536
	ODISHA	14.788235	108507442	0.0000	108507442	10837.82772	0.00000	10837.82772
	SIKKIM	1.517647	11135608	0.0000	11135608	862.40432	0.00000	862.40432
Jan,16	BIHAR	76.564706	561787150	0.0000	561787150	308084.99415	0.00000	308084.99415
	JHARKHAND	7.129412	52311466	0.0000	52311466	33458.15994	0.00000	33458.15994
	ODISHA	14.788235	108507442	0.0000	108507442	2819.17963	0.00000	2819.17963
	SIKKIM	1.517647	11135608	0.0000	11135608	212.12911	0.00000	212.12911
Feb,16	BIHAR	76.564706	6741445799	168529117	6572916682	348494.74386	76963.27402	271531.46985
	JHARKHAND	7.129412	627737597	15692785	612044812	35174.22811	7592.11450	27582.11361
	ODISHA	14.788235	1302089304	32550875	1269538428	11487.85161	3151.13132	8336.72028
	SIKKIM	1.517647	133627301	3340543	130286757	1004.52314	185.06747	819.45567
Mar,16	BIHAR	76.564706	1123574300	1120634193	2940106	594862.16673	527100.32574	67761.84099
	JHARKHAND	7.129412	104622933	104349161	273771	53685.81868	47041.08008	6644.73860
	ODISHA	14.788235	217014884	216447012	567872	83393.81805	82428.33243	965.48563
	SIKKIM	1.517647	22271217	22212939	58278	3722.91709	3706.72220	16.19489
Total					19252338930			4825310



## ANNEXURE-III

Revised RTA on account of change of COD of unit#4 of BARH St-II during the period of November-14 to March-16 as per CERC Order dated 20.09.17 in petition no. 130/MP/2015 with IA No. 67/2017

Month	Beneficiaries	As per RTA already issued by ERPC		Revised figure		Transmission Charges to be refunded to beneficiaries	
		MW share in Barh-II	Transmission Charges(in Rs.)	MW share in Barh-II	Transmission Charges(in Rs.)		
Nov-14	BIHAR	404.83	19014494	0	0	19014494	Transmission charges = station PoC charges
	JHARKHAND	37.7	1770557	0	0	1770557	
	ODISHA	78.19	3672590	0	0	3672590	
	SIKKIM	8.02	376901	0	0	376901	
	WR(M.P.)	93.31	4382566	0	0	4382566	
Dec-14	BIHAR	420.96	37072851	0	0	37072851	
	JHARKHAND	39.2	3452082	0	0	3452082	
	ODISHA	81.31	7160506	0	0	7160506	
	SIKKIM	8.34	734849	0	0	734849	
	WR(M.P.)	72.24	6361790	0	0	6361790	
Jan-15	BIHAR	476.27	58187427	0	0	58187427	
	JHARKHAND	44.35	5418190	0	0	5418190	
	ODISHA	91.99	11238721	0	0	11238721	
	SIKKIM	9.44	1153377	0	0	1153377	
Feb-15	BIHAR	476.27	58187427	0	0	58187427	
	JHARKHAND	44.35	5418190	0	0	5418190	
	ODISHA	91.99	11238721	0	0	11238721	
	SIKKIM	9.44	1153377	0	0	1153377	
Mar-15	BIHAR	476.27	58187427	0	0	58187427	
	JHARKHAND	44.35	5418190	0	0	5418190	
	ODISHA	91.99	11238721	0	0	11238721	
	SIKKIM	9.44	1153377	0	0	1153377	
Apr-15	BIHAR	476.27	58187427	0	0	58187427	
	JHARKHAND	44.35	5418190	0	0	5418190	
	ODISHA	91.99	11238721	0	0	11238721	
	SIKKIM	9.44	1153377	0	0	1153377	
May-15	BIHAR	476.27	78183531	0	0	78183531	Transmission charges = PoC charges+ Reliability Support Charges
	JHARKHAND	44.35	5826171	0	0	5826171	
	ODISHA	91.99	15100894	0	0	15100894	
	SIKKIM	9.44	621039	0	0	621039	
Jun-15	BIHAR	476.27	78183531	0	0	78183531	
	JHARKHAND	44.35	5826171	0	0	5826171	
	ODISHA	91.99	15100894	0	0	15100894	
	SIKKIM	9.44	621039	0	0	621039	
Jul-15	BIHAR	476.27	124118343	0	0	124118343	
	JHARKHAND	44.35	10212031	0	0	10212031	
	ODISHA	91.99	15598836	0	0	15598836	
	SIKKIM	9.44	741389	0	0	741389	
Aug-15	BIHAR	476.27	124118343	0	0	124118343	
	JHARKHAND	44.35	10212031	0	0	10212031	
	ODISHA	91.99	15598836	0	0	15598836	
	SIKKIM	9.44	741389	0	0	741389	
Sep-15	BIHAR	476.27	124118343	0	0	124118343	
	JHARKHAND	44.35	10212031	0	0	10212031	
	ODISHA	91.99	15598836	0	0	15598836	
	SIKKIM	9.44	741389	0	0	741389	
Oct-15	BIHAR	476.27	142750502	0	0	142750502	
	JHARKHAND	44.35	9028063	0	0	9028063	
	ODISHA	91.99	12828557	0	0	12828557	
	SIKKIM	9.44	711276	0	0	711276	
Nov-15	BIHAR	476.27	142750502	0	0	142750502	
	JHARKHAND	44.35	9028063	0	0	9028063	
	ODISHA	91.99	12828557	0	0	12828557	
	SIKKIM	9.44	711276	0	0	711276	
Dec-15	BIHAR	476.27	142750502	0	0	142750502	
	JHARKHAND	44.35	9028063	0	0	9028063	
	ODISHA	91.99	12828557	0	0	12828557	
	SIKKIM	9.44	711276	0	0	711276	
Jan-16	BIHAR	476.27	144563662	0	0	144563662	Transmission charges= PoC Charges+ Reliability Support Charges+HVDC Charges
	JHARKHAND	44.35	7220579	0	0	7220579	
	ODISHA	91.99	18213100	0	0	18213100	
	SIKKIM	9.44	872700	0	0	872700	
Feb-16	BIHAR	476.27	144563662	0	0	144563662	
	JHARKHAND	44.35	7220579	0	0	7220579	
	ODISHA	91.99	18213100	0	0	18213100	
	SIKKIM	9.44	872700	0	0	872700	
Mar-16	BIHAR	107.54	32642784	0	0	32642784	
	JHARKHAND	10.01	1630365	0	0	1630365	
	ODISHA	20.77	4112560	0	0	4112560	
	SIKKIM	2.13	197068	0	0	197068	

## Annexure-II

Revised DSM Statement on account of change of COD of Unit 4 of Barh Stage-II in the period 15.11.14-07.03.16 as per CERC order dated 20.09.17 in Petition No. 130/MP/2015

### I. Calculation of Deviation Charge of Barh St-II Unit 4 INFIRM for the period 15.11.2014-07.03.2016

Deviation Charges receivable by Barh St-II Unit 4 INFIRM from the pool for the period 15.11.14-07.03.16 = **Rs. 636.8593474 Crore**

Charges to be paid by beneficiaries to the pool for the above period \*\*

Beneficiary	Rs. (Crore)
BSPHCL	564.8512231
JUVNL	41.0085656
GRIDCO	25.5745384
SIKKIM	2.7492379
MP(WR)	2.6757824
<b>Total</b>	<b>636.8593474</b>

\*\* However the beneficiaries will get refund of Energy Charges, Capacity Charges and Transmission Charges on account of Barh St-II Unit 4 INFIRM for the period 15.11.2014-07.03.2016 which are shown in different sheets.

### II. Adjustment of Deviation Charge of Barh St-II Unit 4 for the period 15.11.2014-07.03.2016

Period	Prerevised		Revised		Adjustment	
	Payable (Rs. in Crore)	Receivable (Rs. in crore)	Payable (Rs. in Crore)	Receivable (Rs. in crore)	Payable (Rs. in Crore)	Receivable (Rs. in crore)
15.11.14-17.02.16	63.1112737 (Unit-4)		0 (Unit-4)			63.1112737
18.02.16-07.03.16		0.0814222 (Unit-4 + Unit-5)		0.1185666 (Unit-5)		0.0371444

So Deviation Charges receivable by Barh from the Pool for the above period is =Rs. 63.1112737 Crore + RS. 0.037144 Crore = **Rs. 63.1484181 Crore**





भारत सरकार  
Government of India  
विद्युत मंत्रालय  
Ministry of Power  
पूर्वी क्षेत्रीय विद्युत समिति



**Eastern Regional Power Committee**

14, गोल्फ क्लब रोड, टॉलीगंज, कोलकाता-700033  
14 Golf Club Road, Tollygunj, Kolkata-700033

Tel No.:033-24239651, 24239657 FAX No.:033-24239652, 24239652 Web: [www.erpc.gov.in](http://www.erpc.gov.in)

No: ERPC/COM- I/REA/ 2018/ 3780-3798

Date: 02.02.2018

FAX MESSAGE NO. - 48

**From: Member Secretary, ERPC, Kolkata.**

**To: As per list**

In continuation to even No. letter dated 11/12.01.2018, RTDA statement for the period from 15.11.2014 to 07.03.2016 has been revised and given in Annexure-I for kind information and necessary action by all concerned. The revision has been done on account of change in COD date of Unit 4 of Barh Stage-II to 08.03.16 as per CERC order dated 20.09.17 in Petition No. 130/MP/2015.

Regards,

*J. Bandyopadhyay* 02/02/2018  
(J.Bandyopadhyay)  
Member Secretary

Fax sent  
5/2/18

**Revised RTDA Statement on account of change of COD of Unit 4 of Barh Stage-II in the period 15.11.14-07.03.16 as per CERC order dated 20.09.17 in Petition No. 130/MP/2015**

**I. Calculation of Transmission Deviation Charge of Barh St-II Unit 4 INFIRM for the period 15.11.2014-07.03.2016**

Month	BARH INFIRM	
	Energy(MWh)	Transmission Deviation Charges (Rs)
Nov-14	147838.6881	18198942.51
	-1001.672875	143339.3884
Dec-14	185896.4635	22883854.66
	-4998.82931	715332.4743
Jan-15	301117.2253	38814010.34
	-1930.76482	248875.5853
Feb-15	279582.4229	36038174.31
	-524.3484	67588.50876
Mar-15	328251.9161	42311671.99
	-268.27705	34580.91175
Apr-15	139435.3898	7613172.283
	-3961.351271	512994.9896
May-15	278920.8592	15229078.91
	-1521.841383	197078.4591
Jun-15	275556.5576	15045388.04
	-1027.89	133111.755
Jul-15	292565.5964	18753454.73
	-461.969	87173.5503
Aug-15	327311.3917	20980660.21
	-275.5693	51999.92691
Sep-15	339057.6225	21733593.6
	-750.76544	141669.4385
Oct-15	332389.3181	17649872.79
	0	0
Nov-15	303141.9391	16096836.97
	0	0
Dec-15	320102.028	16997417.69
	-729.599	159417.3815
Jan-16	343280.8588	21317741.33
	0	0
Feb-16	302312.54	18773608.73
	-1263.956	261386.1008
Mar-16	95940.83569	5957925.896
	0	0
<b>Total Rs</b>		<b>35.715 Crore</b>

(+)→ Injection of Energy  
(-)→ Drawl of Energy

So Transmission Deviation Charges payable by Barh St-II Unit 4 INFIRM for the period 15.11.14-07.03.16 = **Rs. 35.715 Crore**

**II. Adjustment of Transmission Deviation Charge of Barh St-II Unit 4 for the period 15.11.2014-07.03.2016**

Month	TRANSMISSION DEVIATION CHARGE UPTO PERMITTED LIMIT (Rs.)	TRANSMISSION DEVIATION CHARGE BEYOND PERMITTED LIMIT (Rs.)
Nov-14	154.01	204216
Dec-14	0	1019136
Jan-15	0	407633
Feb-15	0	110702
Mar-15	0	172998
Apr-15	0	836340
May-15	0	376275
Jun-15	0	246261
Jul-15	0	85002
Aug-15	0	68135
Sep-15	0	138141
Oct-15	0	0
Nov-15	0	0
Dec-15	0	180393
Jan-16	1723.04	0
Feb-16	1046.74	402886
Mar-16	263099.2	0
<b>Total Rs.</b>	<b>2.660 Lakhs</b>	<b>42.48118 Lakhs</b>

So the following adjustments have to be done

**A) Rs 2.66 Lakhs to be refunded to the beneficiaries for the above period**

Month	BSPHCL	JUVNL	GRIDCO	SIKKIM	WR(MP)
Nov-14	100.229708	9.333006	19.359057	1.986729	23.1015
Jan-16	1319.228346	122.8355216	254.837616	26.190208	0
Feb-16	801.4260136	74.6220946	154.812846	15.910448	0
Mar-16	201439.2715	18756.34197	38912.37168	3999.10784	0
<b>Total Rs</b>	<b>203660</b>	<b>18963</b>	<b>39341</b>	<b>4043</b>	<b>23</b>

**B) Rs 42.48118 Lakhs to be refunded to Barh for the above period**

requirement. Learned counsel for the Respondent No.3 brought out that while adopting the final Tariff Regulations, 2014, CERC clarified that the trial run is to ensure that plants run reliably at normative levels and the rationale for a plant to demonstrate continuous maximum output during trial run is to verify the performance of the plant guaranteed by manufacturer.

- 9.12 Learned counsel for the Respondent No.3 further submitted that the 4<sup>th</sup> amendment to IEGC which became effective from 06.04.2016 can apply only prospectively and it has no application in the facts of the present case which relates to the trial test of the year 2014. To substantiate his submissions, learned counsel placed reliance on the judgment of the Apex Court in *Hitendra V. Mathur vs. State of Maharashtra 1994 (4) SCC 602* which held that a statute which affects substantive right is presumed to be prospective in operation unless made retrospective either expressly or by necessary intendment.

### **OUR FINDINGS:-**

- 9.13 We have gone through the contentions of the learned counsel for the Appellant as well as the learned counsel for the Respondents and also took note of the decisions of various courts on the subject as placed reliance by the learned counsels. After critical evaluation of the

submissions of both the parties, what emerges is that the reference generating unit could not run at its full load/MCR for continuous 72 hours as required under the Tariff Regulations, 2014. Besides, it is also noted that despite several trial runs, the unit could not attain the requisite parameters of the regulations and developed several defects which were to be rectified by the Appellant after the trial run. It is noticed from the findings of the Central Commission that in spite of machine not passing through the trial test, the Appellant irrationally declared the COD from 15.11.2014 and billed the beneficiaries at provisional tariff considering the machine to have attained the COD.

- 9.14 Accordingly, the Central Commission after careful evaluation of all the material placed before it found that there does not appear sufficient ground which necessitates the exercise of its power under Section 54 of the Tariff Regulation, 2014 to relax the prerequisite conditions of Trial Run before declaration of COD. Having regard to submissions and pleadings of both the parties and taking note of the findings of the Central Commission, we are of the considered opinion that the instant case of the Appellant does not qualify for exercising the regulatory powers of the Commission to relax the conditions which are required to be fulfilled before decelerating COD of a generating unit. Hence, we do not consider

necessary to interfere in the decision of the Central Commission in this regard.

**ORDER**

In the light of above, we are of the considered view that the issues raised in the present appeal being Appeal No. 330 2017 are devoid of merits. Hence the Appeal filed by the Appellant is dismissed. Needless to say that IA No. 840 of 2017 does not survive, hence stand disposed of.

The impugned order passed by the Central Electricity Regulatory Commission dated 20.09.2017 in Petition No. 130/MP/2015 is hereby upheld.

No order as to costs.

Pronounced in the Open Court on this **25<sup>th</sup> day of January, 2019.**

**S.D. Dubey**  
[Technical Member]

**Justice Manjula Chellur**  
[Chairperson]

√ **REPORTABLE/~~NON-REPORTABLE~~**





A Maharatna Company

एन टी पी सी लिमिटेड  
(भारत सरकार का उद्यम)  
**NTPC Limited**  
(A Govt. of India Enterprise)

To,  
Member Secretary  
ERPC  
Tollygunje, Kolkatta-700033

केन्द्रीय कार्यालय / Corporate Centre

**Subject: Regarding Agenda item B1 of Commercial Sub-committee Regarding: COD of U#4 (660MW) of Barh STPS –II of NTPC – APTEL Order (copy attached).**

Sir,

This has reference to Agenda item B1 of 39<sup>th</sup> Commercial Subcommittee to be held on 18.02.2019. In this regard NTPC would like to submit that

Hon'ble CERC in its order dtd 20.09.2017 in Pet No. 130/MP/2015 had held that:  
Quote

*"28. Power injected by Respondent No. 1 in respect of the Unit before 8.3.2016 shall be treated as infirm power even though power was scheduled by the beneficiaries during the period. **The revenue earned over and above fuel cost from sale of infirm power from 15.11.2014 to 7.3.2016 shall be adjusted in the capital cost.**"*

Unquote

(emphasis applied)

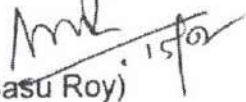
The Hon'ble Tribunal in its judgment has upheld Hon'ble CERC order dtd 20.09.2017 and disallowed NTPC appeal against the above order. Accordingly the capital cost of Barh-II and consequently the Annual Fixed Charges are pending for determination by Hon'ble CERC.

Further NTPC is presently billing beneficiaries of Barh-II provisionally at 85% of initial tariff petition filed before Hon'ble CERC. The fixed charges billed provisionally will be revised along with applicable interest after issue of tariff by Hon'ble CERC in Pet No 130/GT/2014 based on above order. Once, the tariff is determined by Hon'ble CERC, NTPC shall issue revised bills.

There is no direction either from CERC or Hon'ble APTEL regarding refund of energy charges and fixed charges, as recorded in agenda item.

In view of above it is requested that NTPC comments on above item may be taken on record and any discussion if required on above agenda may only be taken-up after determination of revised tariff by Hon'ble CERC.

Yours faithfully

  
(A. Basu Roy)

GM (Commercial), CC

पंजीकृत कार्यालय : एनटीपीसी भवन, स्कोप कॉम्प्लेक्स, 7, इंस्टीट्यूशनल एरिया, लोधी रोड, नई दिल्ली-110003  
कार्पोरेट पहचान नम्बर: L40101DL1975GO1007966 टेलीफोन नं.: 011-24387333 फैक्स नं.: 011-24361018 ईमेल : ntpccc@ntpc.co.in वेबसाइट : www.ntpc.co.in

Registered Office : NTPC Bhawan, Scope Complex, 7, Institutional Area, Lodhi Road, New Delhi-110003  
Corporate Identification Number : L40101DL1975GO1007966 Tel. : 011-24387333 Fax : 011-24361018 E-mail : ntpccc@ntpc.co.in  
Website : www.ntpc.co.in





**GRIDCO LIMITED**  
**POWER PROCUREMENT BRANCH**  
 P.O.: BHOINAGAR, BHUBANESWAR – 751 022.  
 TELE PHONE NO.: 2542308, FAX: 0674 – 2547180, E-mail: srgmppgridco

CIN: L40109OR1995SGC003960

By Fax/Speed Post

Sr.GM-PP-08/2018

811 (3)

Dtd

23/02/19

To

The General Manager (Commercial),  
 NTPC Bhawan, SCOPE Complex,  
 7 Institutional Area, Lodhi Road,  
 New Delhi-110003  
 Fax:-011-24361018

Sub: - Adjustment of dues to be received from NTPC in view of APTEL order dtd 25.01.2019 towards declaration of CoD of Barh-II (Unit-IV).

Ref: - 1) APTEL judgement dtd 25.01.2019 in IA No 840 of 2017 in Appeal No 330 of 2017.

2) This office letter no Sr.GM-PP-08/2018/588 (3) Dtd 11.2.2019

3) Your Letter no CC/Comml Dtd 15.02.2019

4) Your Letter no ER-II Comml/02/2019 Dtd 15.02.2019 from AGM (Comml), NTPC,ER-II,BBSR

Sir,

Hon'ble CERC in its order dtd 20.09.2017 in petition no 130/MP/2015 along with IA No.67/2017 had revised the COD date of Unit-IV (660 MW) of Barh STPS-II as 08/03/2016 in place of 15/11/2014;

Accordingly, in line with the above decision of CERC, ERPC had revised and issued REA, DSM & RTA accounts vide letter dtd 12.01.2018 and RTDA Account vide letter dtd 02.02.2018 respectively for the period from 15.11.2014 to 07.03.2016 (Copy enclosed). However, an appeal was filed by NTPC before APTEL bearing No 330 of 2017 along with the IA no 840 of 2017 for stay of implementation of the CERC order dtd 20.09.2017

Recently, Hon'ble APTEL has given its judgement, dismissing the above Appeal of NTPC in its order dtd 25.01.2019 upholding order dtd 20.09.2017 passed by CERC in petition no 130/MP/2015 and has also clearly ordered that IA No. 840 of 2017 does not survive, hence disposed of.

In view of the aforesaid order of APTEL and as per the revised REA which have been already issued by ERPC vide letter dtd 12.01.2018 in line with the Order dtd 20.09.17 of CERC (where in it is clearly mentioned that beneficiary will get refund of Energy Charges, Capacity Charges and Transmission Charges on account of infirm power of Barh-II Unit-IV for the period 15.11.2014 to 07.03.2016), GRIDCO have provisionally estimated the refundable amount along with the interest for the concerned period up to the date of the order and adjusted in the monthly bill of the amount payable during the month of Dec'18 and Jan'19 which have been already detailed in GRIDCO's letter



As per Hon'ble CERC order dtd 20.09.2017, the revenue earned over and above fuel cost from sale of infirm power from 15.11.2014 to 07.03.2016 shall be adjusted in the capital cost which is also mentioned in the CERC (Terms and Conditions of Tariff Regulation), 2014. Further, it is evident that the tariff is computed by CERC from the date of commercial operation based on the capital cost incurred up to the COD and the projected capital expenditure from the date of COD in line with the CERC (Terms and Conditions of Tariff Regulation), 2014. In this regard Clause 7 of CERC (Terms and Conditions of Tariff Regulation), 2014 may be referred. This is to further clarify that, as the CoD has been considered by Hon'ble CERC from 08.03.2016, any power injected by NTPC before 08.03.2016 is to be considered as Infirm Power as per CERC (Terms and Conditions of Tariff Regulation), 2014. Hence any billing by NTPC prior to 08.03.2016 stands to be withdrawn in deference to the Regulation, Order of Hon'ble CERC & judgement of Hon'ble APTEL.

Hence, in the instant case, Generation Tariff will be determined by CERC from the COD i.e. 08.03.2016 and retention of the amount, paid by GRIDCO to NTPC prior to the COD date i.e. the period from 15.11.2014 to 07.03.2016 towards capacity charge, energy charge, RLDC charge or incentive is not justified and has to be refunded back along with interest by NTPC. Since the amount arising out of the above order has not been refunded back by NTPC, GRIDCO was constrained to adjust the amount from NTPC dues pertaining to the month Dec'18 and Jan'19 which otherwise would have been a violation to the above judgement of Hon'ble APTEL. Hence, the claim made by NTPC for release of deducted amount as per your letter dtd 15.02.2019 is against Law as it is tantamount to violation of Regulations, Order of Hon'ble CERC & judgement of Hon'ble APTEL.

This is for your information and further necessary action.

Thanking You.

Yours Faithfully,

Encl: As above

*S. Nayak*  
23/02/19  
CGM (PP) I/C

CC:-

- 1) Addl. General Manager (Commercial) I/C, Eastern Region-II Headquarters, NTPC Limited, Plot No N-17/2, OLIC Building, 3<sup>rd</sup> & 4<sup>th</sup> Floor, Nayapalli, Bhubaneswar-751012, Fax:- 0674-2501919 for kind information and necessary action.
- 2) Member Secretary, ERPC, Kolkata, 14 Golf Club Road, Tollygunj, Kolkata, Fax-033-24239652 for kind information.

**Scope of Work**

- Annual Maintenance of existing AMR system (656 meters).

**Exclusions**

- Any civil work required at substations.
- If any hardware which is installed at Data Center (H/W like : Server , Gateway , Router , Firewall , Switch ) reaches its End of Support Life time , then the cost for procuring new Hardware asset is not included in this proposal .

Handling of any new type of SEM meters (of New OEM/ having different parameters/ 5 minutes scheduling meters etc) for which new DCU firmware needs to be developed, or Changes required in the Data Center H/W are not included in this scope.

As , the original AMC is over , so all the H/W at filed level will be completed more than 05 years(After installation, 01 year warranty and 04 years AMC ) . So, major Hardware replacement have been considered.

- As per the OEM of DCU, the standard life of DCU is 5-6 years. As the new AMC will be valid till Nov-2024 , that's why 100 no. of DCUs replacement have been considered , which is approx. 80% of the total DCU installed in AMR Phase-1.(Total DCU in AMR Phase-1: 129).
- 50 no of MOXA converter replacement have been considered.
- Other required meter accessories items have been considered.

Below points have been considered in the Service part:

- One dedicated TCS resource for AMR Maintenance.
- One dedicated TCS DBA resource (Database Administrator)
- TCS vendor effort at Sub Station Level.
- TCS vendor effort for Data Center Support of the existing H/W.

## Annexure-B17

### **Scope of work of the project 'Upgradation of SCADA/RTUs/SAS in Central Sector stations and strengthening of OPGW network in Eastern Region'**

#### **A. Replacement of RTUs/SAS and Upgradation of SAS:**

Replacement of existing S-900 and C264 RTUs installed in ULDC phase-I along with upgradation of RTU/SAS/ Remote Operation RTUs for dual reporting to both Main ERLDC & Backup ERLDC over IEC 60870-5-104 Protocol and lack of maintenance support due to non-availability of spares.

S.no	Region	Name of Substations	Remarks
1	ER-II	Durgapur	RTU to be replaced
2	ER-II	Malda	RTU to be replaced
3	ER-II	Binaguri	RTU to be replaced
4	ER-II	Siliguri220	RTU to be replaced
5	ER-II	Birpara	RTU to be replaced
6	ER-II	Subhasgram	RTU to be replaced
7	ER-II	Dalkhola	RTU to be replaced
8	ER-II	Gangtok	RTU to be replaced
9	ER-II	Maithon	RTU to be replaced
10	ER-II	Newmelli	Hardware/License upgradation
11	ER-II	Berhampore	Hardware/License upgradation
12	ER-II	Rangpo	Hardware/License upgradation
13	ER-I	Biharsharif	RTU to be replaced
14	ER-I	Jamshedpur	RTU to be replaced
15	ER-I	Purnea 400	RTU to be replaced
16	ER-I	Purnea 220	RTU to be replaced
17	ER-I	Sasaram HVDC	RTU to be replaced
18	ER-I	Muzaffarpur	RTU to be replaced
19	ER-I	Patna	SAS to be replaced
20	ER-I	Banka	Hardware/License upgradation
21	ER-I	Lakhisarai	Hardware/License upgradation
22	ER-I	Ranchi	SAS to be replaced
23	ER-I	New Ranchi	Hardware/License upgradation
24	ER-I	Chaibasa	Hardware/License upgradation
25	ER-I	Gaya	Hardware/License upgradation
26	ER-I	Sasaram 765	Hardware/License upgradation
27	ER-I	Ara	Hardware/License upgradation
28	Odisha Projects	Jeypore	RTU to be replaced
29	Odisha Projects	Baripada	RTU to be replaced
30	Odisha Projects	Indravati	RTU to be replaced
31	Odisha Projects	Rourkela	RTU to be replaced
32	Odisha Projects	Rengali	RTU to be replaced
33	Odisha Projects	Angul	Hardware/License upgradation
34	Odisha Projects	Jharsuguda	Hardware/License upgradation
35	Odisha Projects	Bolangir	Hardware/License upgradation
36	Odisha Projects	Pandiabili	Hardware/License upgradation
37	Odisha Projects	Keonjhar	Hardware/License upgradation
38	Odisha Projects	Talcher HVDC	Hardware/License upgradation

In 39th ERPC Meeting, ERPC agreed to include 400kV Chandwa , Kishenganj & Daltonganj Substations in the project

B. Implementation of BCU based Substation Automation System at Purnea 220 KV, Ara 220 KV, Birpara220KV, Siliguri220KV, Sasaram S/s in addition to the replacement of RTUs for data reporting to ERLDC through single RTU/SAS as per advice of ERLDC.

C. Replacement of DCPS for replacement of old DCPS commissioned in ULDC phase-I:

Following old DCPS & UPS in 18 nos. Central Sector locations is decided to be replaced:

Sr. No.	Location	Item
1	Durgapur	UPS
2	ERLDC, Kolkata	2x4 kw DCPS with parallel operation
3	Durgapur	DCPS
4	Kanchanpur	
5	Barkot	
6	Jamui	
7	Maldah	
8	Siliguri 400	
9	Jamshedpur	
10	Siliguri 220	
11	Rengali	
12	Birpara	
13	Rourkela	
14	Purnea 220	
15	Indravati	
16	Muzaffarpur	
17	Biharsharif	
18	Sasaram HVDC	

D. Laying of OPGW in the second circuit of following links commissioned in ULDC Phase-I:

S/n	Name of links	Length (Km)
1	Rourkela-Talcher	171
2	Durgapur-Jamshedpur	175
3	Durgapur-Farakka	150
4	Biharsharif-Sasaram	193
5	Biharsharif-Kahalgaon	202
6	LILO portion of Biharsharif-Balia at Ara	12
	<b>Total</b>	<b>903</b>

ISGS	S No	Name of Station	Distance between the nearest communication node to the unit control room	Nearest communication node	Remarks	Length of OPGW considered in km
NTPC	1	Farraka STPS	2500M	NA	<b>Not considered</b> as it is distance between switchyard Control Room and unit Control room. This is not to be done by POWERGRID as recorded in 38th ERPC meeting.	0
	2	Barh STPS	2000M			0
	3	Kahalgaoon TPS	1500M			0
	4	BRBCL Nabinagar	81.65Km+1000M	Sasaram-PGCIL	<b>Considered</b> only OPGW portion i.e. 81.65Km. 1000M not considered as it is distance between switchyard Control Room and unit Control room. This is not to be done by POWERGRID as recorded in 38th ERPC meeting.	81.65
	5	Talchar STPS	660M	NA	<b>Not considered</b> as it is distance between switchyard Control Room and unit Control room. This is not to be done by POWERGRID as recorded in 38th ERPC meeting.	0
	6	Darlipally STPS	810M	Jharsuguda- PGCIL		0
NHPC	7	Rangit HPS	600M	NA		0
	8	Teesta - V HPS	520M	NA		0
IPP Hydro	9	Dikchu HPS	32.67Km+550M	Rangpo	<b>Considered</b> only OPGW portion i.e. 32.67Km. 550M not considered as it is distance between switchyard Control Room and unit Control room. This is not to be done by POWERGRID as recorded in 38th ERPC meeting.	32.67
	10	Teesta - III HPS	46.28Km+1800M	Rangpo	<b>Considered</b> only OPGW portion i.e. 46.28Km. 1800M not considered as it is distance between switchyard Control Room and unit Control room. This is not to be done by POWERGRID as recorded in 38th ERPC meeting.	46.28
	11	Joharhang HPS	27Km+300M	Rangpo	<b>Considered</b> only OPGW portion i.e. 27Km. 300M not considered as it is distance between switchyard Control Room and unit Control room. This is not to be done by POWERGRID as recorded in 38th ERPC meeting.	27
	12	Chuzachen HPS	21Km+350M	Rangpo	Considered only OPGW portion i.e. 21Km under ER FO Expansion(Additional requirement) project awarded in Sept'2018. 350M not considered as it is distance between switchyard Control Room and unit Control room. This is not to be done by POWERGRID as recorded in 38th ERPC meeting.	0
	13	Tashiding HEP	8Km	New Melly	<b>Considered</b>	8
IPP Thermal	14	Jindal ITPL	85Km+1000M	Angul	Considered only OPGW portion i.e. 85Km under ER Reliable Communication project for which award expected by Nov'2018 end. 1000M not considered as it is distance between switchyard Control Room and unit Control room. This is not to be done by POWERGRID as recorded in 38th ERPC meeting.	0
	15	GMR TPS	30Km+800M	Angul	Considered only OPGW portion i.e. 30Km under ER Reliable Communication project for which award expected by Nov'2018 end. 800M not considered as it is distance between switchyard Control Room and unit Control room. This is not to be done by POWERGRID as recorded in 38th ERPC meeting.	0
	16	Ind Bharat EUL	65Km+700M	Jharsuguda- PGCIL	Considered only OPGW portion i.e. 65Km under ER FO Expansion(Additional requirement) project awarded in Sept'2018. 700M not considered as it is distance between switchyard Control Room and unit Control room. This is not to be done by POWERGRID as recorded in 38th ERPC meeting.	0
	17	Adhunik PNRL	300M	NA	Not considered as it is distance between switchyard Control Room and unit Control room. This is not to be done by POWERGRID as recorded in 38th ERPC meeting.	0
	18	MPL	31.5Km+1500M	Maithon	OPGW portion i.e. 31.5Km implemented under ER Fo Expansion project. 1500M not considered as it is distance between switchyard Control Room and unit Control room. This is not to be done by POWERGRID as recorded in 38th ERPC meeting.	0
	19	OPGCL	220M	NA	Not considered as it is distance between switchyard Control Room and unit Control room. This is not to be done by POWERGRID as recorded in 38th ERPC meeting.	0
NTPC/JUSNL	20	Lalmatia	79Km	Farraka	<b>Considered</b>	79
					<b>Total</b>	274.6

## SUMMARY OF DEVIATION CHARGE RECEIPT AND PAYMENT STATUS

BILL upto 20.01.19 (upto Week -42 of 2018 - 19)

Last Payment Disbursement Date - 26.09.18

Figures in Rs. Lakhs

CONSTITUENTS	Receivable	Received	Payable	Paid	Outstanding
WR	15.21672	12.62733	514971.96558	492833.58344	-22135.79275
SR	226050.45324	222954.03553	3889.51850	3939.17284	3146.07205
NER	154366.53195	153325.82633	28944.41500	13579.97506	-14323.73432
NR	99477.31488	54337.11958	53948.24243	41798.49845	32990.45132
BSPHCL	17925.89708	15847.38225	1095.72657	0.00000	982.78826
JUVNL	20828.66090	15300.07751	14.63752	0.00000	5513.94587
DVC	26935.58121	26821.90722	4182.61110	4182.61110	113.67399
GRIDCO	47207.53003	48002.77067	499.59727	1390.00265	95.16474
WBSETCL	49587.93073	49400.77632	0.00000	19.31179	206.46620
SIKKIM	948.66984	154.38587	1311.63493	496.60429	-20.74667
NTPC	12465.60635	12262.81141	70.96887	87.68291	219.50898
NHPC	6.13288	6.13288	4867.32258	4862.54183	-4.78075
MPL	354.47693	355.45400	810.76604	818.02805	6.28494
MTPS STG-II(KBUNL)	1504.70052	1446.34484	0.00000	0.00000	58.35568
APNRL	718.29612	247.44648	511.00554	132.90648	92.75058
CHUZACHEN (GATI)	135.98794	132.68095	729.90338	729.90332	3.30693
NVVN(IND-BNG)	1062.15902	1018.85267	425.02081	427.89872	46.18426
JITPL	928.96698	909.43894	1117.00383	1117.01502	19.53923
GMR	1455.33387	1360.44049	1634.82974	1587.70921	47.77285
IND BARATH	112.50429	0.00000	0.00000	0.00000	112.50429
TPTCL(DAGACHU)	6508.85901	6381.02693	36.08101	36.24336	127.99443
JLHEP(DANS ENERGY)	896.47807	888.05815	485.11323	485.08963	8.39632
BRBCL(Nabinagar)	308.02212	297.07594	1188.72627	1198.81027	21.03018
NVVN (IND-NEPAL)	5932.83022	5753.66577	560.57529	574.69080	193.27996
HVDC SASARAM	39.21356	27.15153	263.94644	263.94644	12.06203
HVDC ALIPURDUAR	66.65713	67.61607	363.62337	364.58231	0.00000
TEESTA-III	1231.78908	1230.03951	2649.17225	2649.15225	1.72957
DIKCHU(Sneha Kinetic)	157.42733	172.55679	962.05498	976.42339	-0.76105
TASHIDING(Shiga Energy)	449.99719	422.56633	507.61915	507.61917	27.43088
OPGC	546.04602	498.97962	0.00000	0.00000	47.06640
NPGC	829.19644	799.76270	0.00000	0.00000	29.43374
Pool Balance	0.00000	822.45081	-8101.19490	0.00000	7278.74409
Addl Deviation charge	35316.66089	48459.88063	0.00000	0.00000	-13143.21974
IRE	0.00000	0.00000	-124.71065	0.00000	124.71065
VAE	32.97914	0.00000	26039.78722	0.00000	-26006.80808
<b>TOTAL</b>	<b>679054.46764</b>	<b>620435.01061</b>	<b>643855.96334</b>	<b>575060.00278</b>	

% Realization

91.37

As on

06.02.19

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

## Deviation Interest Bill due to delay payment during FY 2017-18

As on 06.02.19

Annexure-B20.2

Sl No.	Name of Constituents	Interest amt Payable by Party(in Rs)	Amount Paid/ recovered by Party(in Rs)	Interest amt receivable by Party(in Rs)	Amount paid to the Party(in Rs)	Outstanding Interest as on 06.02.19 (in Rs)
1	BSPHCL	16974993	16974993			0
2	JUVNL	15419205	15419205			0
3	DVC			14278	14278	0
4	GRIDCO			25776	25776	0
5	WBSETCL	0				0
6	SIKKIM	1143998				1143998
7	NTPC	0				0
8	NHPC			5860	5860	0
9	MPL	1443	1443			0
10	APNRL			57900	57900	0
11	CHUZACHEN	8617	8617			0
12	NVVN(IND-BD)	765	765			0
13	JITPL	38619	38619			0
14	GMR	56974	56974			0
15	IND BARATH	2135362				2135362
16	TPTCL(DAGACHU)	304143	304143			0
17	JLHEP	230359	230359			0
18	BRBCL	5315	5315			0
19	NVVN(IND-NEP)	5268	5268			0
20	TUL(TEESTA-III)			5772	5772	0
21	DIKCHU			9475	9475	0
22	HVDC-PSL			127	127	0
23	HVDC-ALPD			355	355	0
24	TASHIDING	138753	138753			0
25	OPGC	0				0
	<b>Total</b>	<b>36463813</b>	<b>33184453</b>	<b>119543</b>	<b>119543</b>	<b>3279360</b>



## STATUS OF REACTIVE CHARGES

RECEIVABLE IN ER POOL AS PER PUBLISHED A/C UPTO 20.01.19 (2018 -19)  
AS ON 06.02.19

CONSTITUENT	AMOUNT RECEIVABLE IN THE POOL (Rs.)	AMOUNT RECEIVED IN THE POOL (Rs.)	TOTAL OUTSTANDING(Rs.)
BSPHCL	5010087	378537	4631550
JUVNL	4285714	1137688	3148026
DVC	660320	660320	0
GRIDCO	245987789	245987789	0
WBSETCL	676708817	658345891	18362926
SIKKIM	635432	325817	309615
TOTAL	933288159	906836042	26452117

Note: (+ve) means payable by utility & (-ve) means receivable by utility

## **Eastern Regional Power Committee, Kolkata**

### **Minutes of Special Meeting on “RGMO/FGMO and PSS Tuning of Generators in Eastern Region” held at ERPC, Kolkata on 31.01.2019 at 11:00 hrs**

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

Member Secretary, ERPC chaired the meeting. He welcomed all the participants in the meeting. He informed that the issue of RGMO/FGMO and PSS Tuning is being reviewed in every OCC Meeting. But there was no significant improvement in the performance of the generators. In order to discuss the issue in detail, in 148<sup>th</sup> OCC Meeting held on 20.08.2018, it was decided that a separate meeting on Restricted Governor /Free Governor Mode Operation and PSS Tuning of generators with the power station authorities in the Eastern Region shall be convened for detailed deliberation.

He informed that vide CERC order dated 31<sup>st</sup> July 2017 in Petition No. 84/MP/2015, the Commission directed the following:

Section 23 “

- a) Considering the fact that further measures have been put in place to facilitate desirable primary response, the Commission, starting from the month of September, 2017 shall be closely watching the primary response of ISGSs as reported by POSOCO/NLDCs. At the State level, SLDCs shall report the frequency response of intra-State generators to the concerned SERCs.
- b) NLDCs and SLDCs through the assistance of POSOCO shall start the process of selecting independent third parties capable of undertaking periodic checkups to monitor the RGMO/FGMO response. To start with, selected independent third parties shall be sent to the generating stations which are not providing the desired RGMO/FGMO response. Independent Third Parties shall ensure that the generator has not, in any way, prevented/disabled the governor from providing the desired response. In case, even after enabling the governors, units are not able to provide the desired response as per the provisions of the Grid Code, third parties, based on the submissions of the generators, shall bring out the technical constraints, if any, which limit the primary response of the units.
- c) All ISGSs are directed to provide primary response compulsorily in terms of Regulation 5.2 (f), (g), (h) and (i) of the Grid Code failing which we would not hesitate in initiating action under Section 142 of Electricity Act, 2003 for not providing desired RGMO/FGMO response without any valid reasons.

Section 24

“..... The Committee (on implementation of FGMO / primary response) has also recommended that there is no requirement for granting any exemption even to LMZ units from operation under RGMO/FGMO with manual intervention.”

“... has the option of either expediting the R&M of old units which shall include installation of new EHG governors capable of providing adequate primary response or to go in for retrofit of mechanical governors for adopting RGMO features or to operate on FGMO with manual intervention...”

He advised all the power stations to take the necessary action to improve the performance of the generators.

#### **I. RGMO/FGMO performance of Generators**

ERLDC gave detailed presentation on Primary Response of Generators in the Eastern Regions. The presentation is enclosed at **Annexure-I**.

**During the meeting, the generating stations raised queries pertaining to the following:**

1. Regulatory requirement from the IEGC, CERC orders and Expert Committee recommendations
2. Exemption to old units from providing FGMO / RGMO response

3. Triggering criteria for frequency response, rate/quantum/duration of response
4. Data logging (resolution) and assessment of response

**The queries raised by the generating stations were clarified by ERLDC/ERPC as under:**

1. Primary frequency control is automatic and it aims to arrest the grid frequency variations by automatically varying generator output as per its droop characteristics. Restoration of frequency to the nominal i.e. 50 Hz in case of India is achieved through secondary and tertiary controls ranging from few minutes to hours.
2. Time frame for primary governor control action is of the order of a few seconds i.e. 5- 30 seconds and should last for at least 3-4 minutes to enable secondary control to take over which will allow the primary reserves to be restored. **(Ref: 17.2 of Report of the Committee on Free Governor Mode Operation of Generating Units, Ref: Chapter 4, Page 34 of Report of Expert Group to review and suggest measures for bringing power system operation closer to National Reference Frequency).**
3. IEGC permits a ripple filter of 0.03 Hz. This implies that the unit shall provide primary response whenever the change in frequency is more than 0.03 Hz. The time between two successive frequency measurements shall be suitably tuned to provide primary response within 5-30 seconds of the grid event causing the change in frequency. **(Ref : IEGC 5.2(f))**
4. After the automatic primary response the unit may be brought back to its scheduled load at the rate of 1% per minute though local supplementary control. **(Ref: IEGC 5.2(i))**
5. The ex-bus schedule shall be restricted to MCR less normative auxiliary consumption. Operation in Valve wide-open mode is prohibited. The control valves shall be kept throttled to provide governor response at all times. **(Ref: IEGC 5.2(h))**
6. No exemption has been granted by CEC to LMZ units for operation under RGMO/FGMO. In case of difficulty to operate in RGMO, generators may operate under FGMO with manual intervention for providing mandated response as per the provisions of the Grid Code. **(Ref: CERC order in Petition No. 65/MP/2014, Ref: CERC order in Petition No. 84/MP/2015, Ref: 19.9 of Report of the Committee on Free Governor Mode Operation of Generating Units).**
7. The methodology used for computing the Frequency Response Characteristics shall be as per the procedure approved by Hon'ble CERC vides order dated 3rd May 2013. All generators as well HVDC were advised to calculate their response as per the described procedure during the meeting. **(Ref: CERC order in Petition No. 47/MP/2012).** SLDCs were advised to report the frequency response of intra-State generators to the concerned SERCs. **(Ref: CERC order in Petition No. 84/MP/2015).**
8. A generator response which is minimum 40% of ideal FRC is to be considered as adequate response. **(Ref: 9.6 (b) of Report of Expert Group to review and suggest measures for bringing power system operation closer to National Reference Frequency).**
9. The MW and frequency data available at station DCS shall be archived at a resolution of at least 1 second, for post-facto analysis of the adequacy of the response.

All the station representatives stated that the gap in understanding the provisions of the grid code had been addressed through the deliberations in the meeting. They assured that the governor settings would be re-tuned in the next few days to provide the response expected as per the IEGC 5<sup>th</sup> amendment. All the generating utilities updated the latest status and their action plan which is enclosed at **Annexure-IA**.

The two frequency response events, which occurred in the month of January 2019, were also informed by ERLDC to all generators. It was decided that all generators would submit high resolution (1 sec) data of MW output, Frequency (Hz), and RGMO influence in MW (if available) along with FRC calculation and suitable explanation of response by 4<sup>th</sup> Feb 2019 to [erldcprotection@posoco.in](mailto:erldcprotection@posoco.in) and [erpcprotection@gmail.com](mailto:erpcprotection@gmail.com).

**Events Date and Time:**

<b>Date and Time</b>	<b>Time period for required data</b>	<b>Event</b>	<b>Frequency Drop</b>
16-01-2019 12:25 hrs	12:24 hrs to 12:29 hrs	Solar Generation loss in Northern region of 1400 MW	0.107 Hz
23-01-2019 06:37 Hrs	06:36 hrs to 06:41 hrs	Loss of generation at Rampur & NJPC in Northern region	0.08 Hz

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

1. All the generators would take necessary tuning of their units along with the Boiler logic to provide adequate RGMO/FGMO response
2. Generator which cannot provide automatic response should operate on FGMO with manual intervention
3. All the generators would address the issues related to implementation of RGMO/FGMO during R & M works immediately.
4. All the generators shall calculate the RGMO/FGMO response for the events informed by ERLDC.
5. All the generators shall submit the high resolution data to SLDC and ERLDC for computation of the response.
6. The status of implementation of RGMO/FGMO and the performance of the generators shall be reviewed in monthly OCC Meetings.

## II. PSS Tuning of Generators

ERLDC gave a detailed presentation on role of Power System Stabilizer and the importance of its tuning. Presentation is enclosed at **Annexure-II**. ERLDC explained the following during the PSS Tuning Session:

1. Low frequency oscillation and its adverse effect on the grid as well generating plants
2. Basics of PSS tuning, PSS Tuning Requirement as per Regulation/Standards
3. Criteria for PSS tuning and analysis of PSS tuning.
4. Exciter, PSS Data and its tuning details as received from various generators (**Annexure-II A**)
5. Analysis of PSS tuning field reports submitted by the various generators (**Annexure-II B**)
6. Need for Model data submission from generators and its utilization

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

1. Generators who had already done the PSS tuning shall submit the details of the Excitation System, PSS tuning and its report as per the list attached at **Annexure-II A**. The generators shall submit the Generator terminal voltage, Field voltage, Real power, Reactive Power, Generator Speed, and PSS output in excel/.csv format for better analysis of the result.
2. Generators for which PSS tuning was not carried out shall take up the PSS Tuning with OEM immediately
3. Generators for which PSS was not in service shall take up the issue with OEM immediately to bring the PSS into service.
4. For any future tuning, it was recommended to all generators to collect the response along with data in .csv/excel format.
5. All the generators where the PSS tuning was done and PSS not in service shall submit their action plan for PSS Tuning in line with IEGC and CEA standards before the next OCC meeting to ERPC/ERLDC.

Meeting ended with vote of thanks to the chair.

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



NO. ERPC/COM-I/Corres/2018-19/ 6802-03

Date: 19.12.2018

To,

**The Joint Secretary (Transmission)**

Ministry of Power  
Government of India  
Shram Shakti Bhavan  
Rafi Ahmed Kiwai Marg  
New Delhi-110001

**Sub: Establishment of Renewable Energy Management Centre (REMC) in Eastern Region - reg.**

Ref: Deliberations of 39<sup>th</sup> TCC & ERPC meetings held on 16<sup>th</sup> & 17<sup>th</sup> November, 2018

Sir,

The present installed capacity of Renewable Energy Sources in Eastern Region is 1083.64 MW. The tentative State wise break-up of renewable energy target to be achieved by March, 2022 by Eastern Region are as follows:

(ALL FIGURES IN MW)

State / UTs	Solar Power	Wind Power	Small Hydro Power + Biomass Power	TOTAL
Bihar	2,493	Nil	269	2,762
Jharkhand	1,995	Nil	10	2,005
Orissa*	2,377	Nil	115	2,492
West Bengal	5,336	Nil	398.5	5,735
Sikkim	36	Nil	52.11	88
<b>Eastern Region</b>	<b>12,237</b>	<b>Nil</b>	<b>845</b>	<b>13,082</b>

\* Odisha has informed that they are planning for total 3127 MW renewable energy to be achieved by March 2022 (Solar Power – 2377 MW, Wind-150 MW, and Small Hydro including Biomass - 600 MW)


The generation from the Renewable Energy Sources is characterised by variability and uncertainty. Therefore, seamless integration of the RES into the grid is considered to be a challenging work. The aspect of variability and uncertainty associated with the Renewable Energy Sources requires implementation of the state-of-art, renewable energy forecasting and monitoring system. Keeping this in view, Ministry of Power, Government of India, has decided to establish Renewable Energy Management Centres at Western, Northern and Southern Region as a part of Green Energy Corridor Scheme. At present no REMC has been planned yet for Eastern Region & North Eastern Region.

This issue was deliberated in the 39<sup>th</sup> Technical Coordination Committee & Eastern Regional Power Committee meetings held on 16th & 17th November, 2018. All the states in Eastern Region felt the necessity of establishment of REMC in the states of West Bengal, Bihar, Odisha and Jharkhand and at ERLDC as well, considering substantial addition of renewable power in the Eastern Region, the necessity of better forecasting and smooth integration of RES in the Regional Grid.

I would request you to please consider the request of the Eastern Regional States regarding establishment of REMC in the states of West Bengal, Bihar, Odisha and Jharkhand and at ERLDC as well.

Thanking You.

Yours faithfully,

 19/12/18  
(J. Bandyopadhyay)  
Member Secretary

Copy to: **Chairperson, ERPC & Chairman-cum-Managing Director, GRIDCO & OPTCL,  
Janpath, Bhubaneswar-751022.**





**Eastern Regional Power Committee**  
14, गोल्फ क्लब रोड, टॉलीगंज, कोलकाता-700033  
14 Golf Club Road, Tollygunj, Kolkata-700033

Tel No.:033-24239651, 24239659 FAX No.:033-24239652, 24239653 Web: [www.erpc.gov.in](http://www.erpc.gov.in)

NO. ERPC/COM-I/Corres/2018-19/ **6637-41**

Date: 12.12.2018

To,

**The Under Secretary,**  
Ministry of Power,  
Shram Shakti Bhawan, Rafi Marg,  
New Delhi- 110001.

**Sub: Submission of ERPC on inclusion of Sikkim in NER Region - reg.**

- Ref: 1) Your letter No. 6/5/2017-Trans-Pt (1) dated 31.10.2018  
2) Deliberations of 39<sup>th</sup> TCC & ERPC meetings held on 16<sup>th</sup> & 17<sup>th</sup> November, 2018 at Jaipur

Sir,

With above subject and reference, the views of the Eastern Region in respect of the proposal of inclusion of Sikkim in NER are as follows:

1. Sikkim is an integral part of the Eastern Regional Grid since its inception. Sikkim is a constituent member of ERPC (erstwhile EREB). It is geographically and electrically connected with Eastern Region (ER) only. Sikkim has no direct electrical connection with the North Eastern Region.
2. Sikkim is directly connected with Eastern Regional utilities (WBSETCL/ WBSEDCL, PGCIL- ER-II) as well as ER Central Generating Stations (NHPC) through inter-state and ISTS lines. So smooth and reliable grid operation and better visibility of ER Grid require continuous co-ordination among Sikkim, other intra-regional utilities and ERPC/ERLDC.
3. As all the inter-connecting lines of Sikkim are passing through ER, any disturbance originating in Sikkim system will be automatically directly transmitted to ER first. As such, ER is susceptible to the disturbances. For this, regular operational and protection coordination is required to be maintained between Sikkim and rest of the ER. Therefore, for the sake of stability, reliability and smooth operation of ER grid, NER should continue to an integral part of ER grid.
4. From the point of view of transmission planning also, it would a definite advantage for Sikkim to remain as integral part of in the Eastern Region because of its complex inter-connection with Eastern Region.
5. Surplus power generated in the Sikkim are exported to Eastern Region and to other regions of the country (not to NE region) through Eastern Region. Power allocated from ISGS stations of Teesta-V and Rangit to the Eastern Regional States is also transmitted from Sikkim to the rest of Eastern Region.




6. Any ISTS line connected with Sikkim would be treated as inter-regional line in the event of Sikkim becoming a part of NER grid. As such, shut down required, even for emergency purpose, for such line would require the consent of both ER and NER regions. Consequently this would involve lengthy process and would be time consuming as well.
7. Inclusion of Sikkim in NER would have financial implication for transaction of power between ISGS of ER and Sikkim as well as between the Sikkim ISGSs and the rest of the ER beneficiaries. The additional burden of transmission loss would be loaded because of inter-regional transaction of power.
8. Inclusion of Sikkim in NER might lead to claim of reallocation of ISGS power of Teesta-V and Rangit of NHPC among the NER states as the firm power of ISGS is allocated among the states of the region as per the existing methodology of allocation of power from Central Generating Stations. Presently the firm power of Teesta-V and Rangit is allocated among the states of the Eastern Region. This would lead to unnecessary dispute and complexity.
9. Most of the techno-commercial issues between Sikkim and other ER utilities are presently being sorted out smoothly in the forums of ERPC. On the other hand, if Sikkim is treated as NER constituent, the techno-commercial issues involving Sikkim and other ER states would need to be discussed in both ER and NER forum. This would add unnecessary complexities towards resolving the issues.

The proposal of inclusion of Sikkim in NER was also deliberated at length in the 39<sup>th</sup> Technical Coordination Committee & Eastern Regional Power Committee meetings held on 16<sup>th</sup> & 17<sup>th</sup> November, 2018 respectively. The Technical Coordination Committee (TCC) of ERPC strongly objected to the proposal of inclusion of Sikkim in NER keeping in view the operational expediency, security and reliability of the ER grid.

ERPC forum unanimously decided that, taking into consideration the reliability and security of the Eastern Regional grid and the interest of Sikkim for evacuation of surplus power, Sikkim should continue to remain as an integral part of the Eastern Regional Grid. In the ERPC Meeting, Sikkim expressed that it also favoured to remain as an integral part of the Eastern Grid.

Thanking You.

Yours faithfully,

  
(J. Bandyopadhyay)  
Member Secretary

Copy to:

1. Chairperson, ERPC & Chairman-cum-Managing Director, GRIDCO & OPTCL, Janpath, Bhubaneswar-751022.
2. Member (PS), Central Electricity Authority, Sewa Bhawan, R.K.Puram, Sector – I, New Delhi – 110066.
3. The Member Secretary, North Eastern Regional Power Committee, NERPC Complex, Dong Parmaw, Lapalang, Shillong – 793006, Meghalaya.
4. Principal Chief Engineer cum Secretary, Energy & Power Department, Govt. of Sikkim, Kazi Road, Gangtok – 737101, Sikkim.



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



NO. ERPC/COM-I/Corres/2018-19/6976-78

Date: 28.12.2018

To,

**The Secretary,**  
Central Electricity Regulatory Commission,  
3<sup>rd</sup> & 4<sup>th</sup> Floor, Chanderlok building,  
36 Janpath,  
New Delhi-110001.

**Sub: Refund of STOA withdrawl PoC charges to DICs paid by embedded customers to PGCIL towards their drawl in STOA - reg.**

Ref: Minutes of 39<sup>th</sup> TCC & ERPC meetings held on 16<sup>th</sup> & 17<sup>th</sup> November, 2018 at Jaipur

Sir,

In various fora of ERPC, the constituents of the Eastern Region have been raising the issue of non-refund of STOA withdrawal PoC charges to DICs paid by embedded customers to PGCIL towards their drawl in STOA. A detailed deliberations on this issue was held in 39<sup>th</sup> TCC & ERPC meeting on 16<sup>th</sup> November, 2018 and 17<sup>th</sup> November, 2018 respectively. As per the decision of 39<sup>th</sup> ERPC Meeting, on behalf of ERPC forum, the followings are placed before appropriate Committee for review of PoC Charges for kind consideration:

1. The payment of transmission charges for use of Inter-State Transmission System is governed by the provisions of the CERC (Sharing of Inter State Transmission Charges and Losses) Regulation, 2010 (Sharing Regulations). In order to capture the market changes & in the light of bringing more rationality & refinement, the Sharing Regulations has undergone several amendments as below:
  - i. 1<sup>st</sup> Amendment Regulations 2011
  - ii. 2<sup>nd</sup> Amendment Regulations 2012
  - iii. 3<sup>rd</sup> Amendment Regulations 2015
  - iv. 4<sup>th</sup> Amendment Regulations 2015
  - v. 5<sup>th</sup> Amendment Regulations 2017

Out of the above amendments the 3<sup>rd</sup> amendment is the major one which encapsulated the major changes to the sharing methodology.

2. The process for Billing in sharing of Transmission charges & Losses has been laid down in Regulation 11 of the Sharing Regulations which inter alia provides modalities of the sharing of ISTS transmission charges between DICs raised by CTU in three parts. More specifically Regulation 11.9 deals with the governance of offsetting transmission charges on account of STOA availed by DICs and the embedded customers therein. The related provisions of Regulation 11.9 is extracted below:

- i) As per 3<sup>rd</sup> provision of Regulation 11.9 of Sharing regulation 2010,



***“The injection PoC charge/withdrawal PoC charges for Short Term Open Access given to a DIC shall be offset against the corresponding injection PoC charges or Withdrawal PoC charges to be paid by the DICs for Approved injection /Approved withdrawal corresponding to Net withdrawal(load minus own injection) considered in base case.”***

ii) And the 4<sup>th</sup> proviso of Regulation 11.9 of Sharing regulation 2010 states that

***“For withdrawal DIC, this adjustment is given only for STOA transaction by DIC and not applicable to other intra-state entity embedded in State and engaged in STOA.”***

3. As far as the STOA transactions are concerned, these are being captured / accounted for while determining the PoC rate calculation of states / DICs for the respective quarters. Regarding the Short Term draws by intra-State entity embedded in State, it is of the same nature i.e. such STOA transactions by intra-State entities embedded in State are also captured / accounted for while determining the PoC charge calculation of the states/ DICs for the respective quarters.
4. Presently there is no provision in the extant regulation for adjustment of total STOA charges availed by intra-State embedded entities.
5. As a case study, the following example is produced for calculation methodology towards refund to DICs:

➤ Assumptions taken in the example:

Base Case Net Withdrawal considered for DIC “X”=	2000 MW
Approved withdrawal as per RTA for “X” =	1500 MW
No. of Days in Month (NDM) =	31
No. of STOA Embedded customers of “X” =	2
(Customer-1 drawing 300 MW of power through STOA by using ISTS & Customer-2 drawing 400 MW of power through STOA by using ISTS)	
STOA Rate for a quarter =	Rs. 300 / MWH
STOA quantum procured by DIC X =	100 MW

➤ With the aforesaid assumptions the Calculation Methodology towards refund of PoC charges corresponding to STOA transactions by embedded entities to DICs is framed as below:

- a. Base Case Net Withdrawal for DIC X (MW) = 2000
- b. Approved withdrawal as per RTA for DIC X (MW) = 1500
- c. Difference i.e. the STOA entitlement of DIC X (MW)= 500
- d. STOA Rate (determined by CERC for a quarter) = Rs.300 /MWH
- e. Total STOA quantum procured by DIC X (MW) = 100
- f. STOA charges Paid by DIC X towards such direct procurement (Cr) =  $100 \times 300 \times 24 \times 31 / 10^7 = 2.23$
- g. Total STOA quantum procured by Embedded customers of state (MW) =  $300 + 400 = 700$
- h. STOA charges Paid by Embedded customers towards such STOA procurement (Cr) =  $700 \times 300 \times 24 \times 31 / 10^7 = 15.62$
- i. Double Charges paid by DIC X (Cr) =  $500 \times 300 \times 24 \times 31 / 10^7 = 11.16$
- j. Amount already reimbursed by PGCIL / CTU

	through STOA Offset (Cr) =	2.23
k.	Unpaid Quantum towards double charges (MW)=	400
l.	Unpaid STOA charges ( towards double charges) to be refunded to DIC X (Cr) =	11.16-2.23 =8.93


The tabular representation for the calculation is attached at Annexure-I.

6. In view of the above, the constituents of Eastern Region have submitted that the issue of refund/adjustment of PoC charges for STOA transactions by embedded entities of the states/DIC to the extent it is being captured while calculation of PoC charges should be referred to appropriate Committee for review of PoC Charges.

I would request you to kindly consider the above and take necessary action in this regard.

Thanking You.

Yours faithfully,

 28/12/18  
(J. Bandyopadhyay)  
Member Secretary

Copy to:

1. Chairperson, ERPC & Chairman-cum-Managing Director, GRIDCO & OPTCL, Janpath, Bhubaneswar-751022.
2. Chairperson, TCC and Director (Commercial), GRIDCO Ltd., Janpath, Bhubaneswar-751022.

Calculation Methodology towards refund of PoC charges corresponding to STOA transactions by Embedded entities

Annexure-I

No. of Days in Month (NDM) = 31

Base Case Net Withdrawal for DIC X (MW)	Approved withdrawal as per RTA for DIC X (MW)	Difference i.e. the STOA entitlement of DIC X (MW)	STOA Rate (Rs./MWH)	Total STOA quantum procured by DIC X (MW)	STOA charges Paid by DIC X towards such direct procurement (Cr)	Total STOA quantum procured by Embedded customers of state(MW)		STOA charges Paid by Embedded customers towards such STOA procurement (Cr)	Double Charges paid by DIC X (Cr)	Amount being reimbursed by PGCIL /CTU through STOA Offset (Cr)	Unpaid Quantum towards double charges (MW)	Unpaid STOA charges (towards double charges) to be refunded to DIC X (Cr)
A	B	C=A-B	D	E	F	G		H	I=C*D	J	K=C-E	L=I-J
2000	1500	500	300	100	2.23	Customer 1-300 MW	700	15.62	11.16	2.23	400	8.93
						Customer 2-400 MW						

## Annexure-C12.1

### Difference in DSM account for ERPC & NRPC

All figs Rupees in Lacs

Week No.	Financial Year	Bill Period	As per ERPC Fig	As per NRPC Fig	Diff	Remarks
42	2017-18	15-Jan-18 to 21-Jan-18	38.97137	39.29811	-0.32674	ERPC - NRPC account almost matched
43		22-Jan-18 to 28-Jan-18	1818.71461	1819.54751	-0.83290	
44		29-Jan-18 to 04-Feb-18	487.19714	487.57902	-0.38188	
45		05-Feb-18 to 11-Feb-18	-646.59265	-646.02624	-0.56641	
46		12-Feb-18 to 18-Feb-18	1584.50023	1585.10833	-0.60810	
47		19-Feb-18 to 25-Feb-18	476.0878	476.43103	-0.34323	
48		26-Feb-18 to 04-Mar-18	1031.32822	1031.76241	-0.43419	
49		05-Mar-18 to 11-Mar-18	3770.82179	3769.44801	1.37378	
50		12-Mar-18 to 18-Mar-18	747.61039	748.42405	-0.81366	
51		19-Mar-18 to 25-Mar-18	1375.16618	1368.40764	6.75854	
52		26-Mar-18 to 01-Apr-18	210.04301	210.42000	-0.37699	
1	2018-19	02-Apr-18 to 08-Apr-18	1009.60994	1278.46919	-268.85925	NRPC Revision Done
2		09-Apr-18 to 15-Apr-18	-654.32388	-692.66860	38.34472	NRPC Revision Done
3		16-Apr-18 to 22-Apr-18	-1284.45597	-1390.85092	106.39495	NRPC Revision Done
4		23-Apr-18 to 29-Apr-18	-2159.58592	-2257.12707	97.54115	NRPC Revision Done
5		30-Apr-18 to 06-May-18	353.29802	180.20509	173.09293	NRPC Revision Done
6		07-May-18 to 13-May-18	146.92212	-599.83702	746.75914	NRPC Revision Done
7		14-May-18 to 20-May-18	-3368.88035	-4112.30688	743.42653	NRPC Revision Done
8		21-May-18 to 27-May-18	-2796.00937	-3900.47619	1104.46682	NRPC Revision Done
9		28-May-18 to 03-Jun-18	-2591.71233	-3203.81689	612.10456	NRPC Revision Done
10		04-Jun-18 to 10-Jun-18	-3967.18649	-4640.58132	673.39483	NRPC Revision Done
11		11-Jun-18 to 17-Jun-18	-5122.51604	-6386.98958	1264.47354	NRPC Revision Done
12		18-Jun-18 to 24-Jun-18	-6473.51666	-7954.42305	1480.90639	NRPC Revision Done
13		25-Jun-18 to 01-Jul-18	-1685.53423	-2975.43419	1289.89996	NRPC Revision Done
14		02-Jul-18 to 08-Jul-18	-385.14665	-2663.69127	2278.54462	NRPC Revision Pending
15		09-Jul-18 to 15-Jul-18	-2801.19246	-5350.27882	2549.08636	NRPC Revision Pending
16		16-Jul-18 to 22-Jul-18	-1799.16426	-4037.75088	2238.58662	NRPC Revision Pending
17		23-Jul-18 to 29-Jul-18	1118.66298	1109.37759	9.28539	NRPC Revision Pending
18		30-Jul-18 to 05-Aug-18	766.69794	-1644.61889	2411.31683	NRPC Revision Pending
19		06-Aug-18 to 12-Aug-18	-86.22433	-2601.46292	2515.23859	NRPC Revision Pending
20		13-Aug-18 to 19-Aug-18	-2350.19739	-4349.83849	1999.64110	NRPC Revision Pending
21		20-Aug-18 to 26-Aug-18	-1551.02649	-3609.48205	2058.45556	NRPC Revision Pending
22		27-Aug-18 to 02-Sep-18	-2337.21583	-4670.94369	2333.72786	NRPC Revision Pending

## Annexure - C12.3

### SUMMARY OF RRAS CHARGE RECEIPT AND PAYMENT STATUS

BILL from 02.04.18 to 20.01.19 (upto Week - 42 of 2018 - 19)

Last Payment Disbursement Date -06.02.19

Figures in Rs. Lakhs

CONSTITUENTS	Receivable	Received	Payable	Paid	Outstanding
FSTPP STG-I & II	384.35530	352.14982	3955.59911	3927.33109	3.93746
FSTPP STG-III	105.01552	95.84101	2163.99108	2151.74448	-3.07208
KhSTPP STG-I	151.18304	143.46901	4581.19033	4568.78183	-4.69447
KhSTPP STG-II	39.34237	38.80175	6459.55857	6444.32326	-14.69469
TSTPP STG-I	37.46264	37.04840	116.06508	116.06508	0.41425
BARH STG-II	224.29320	221.52636	3427.09073	3417.68153	-6.64236
BRBCL (Nabinagar)	18.32129	18.03804	1793.64906	1791.12600	-2.23981
KBUNL (MTPS-II)	53.82299	47.01378	1244.67313	1150.39113	-87.47279
<b>TOTAL</b>	<b>1013.79634</b>	<b>953.88816</b>	<b>23741.81709</b>	<b>23567.44440</b>	<b>-114.46448</b>

As on

06.02.19

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 - C12.4****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
<b>TOTAL</b>	<b>43.21604</b>	<b>56.19153</b>	<b>43.21604</b>	<b>56.19153</b>	<b>0.00000</b>

**% Realization****As on 31.05.2015**

Receivable: Receivable by ER POOL

Payable

Payable by ER POOL

Received Receivable by ER POOL

Paid

Paid by ER POOL

"- ve" Payable by ER pool

"+ ve" Receivable by ER pool

## Annexure - C12.5

## DETAILS OF DISBURSEMENT TO POWER SYSTEM DEVELOPMENT FUND

SI No	Nature of Amount	Amount transferred to PSDF (Rs in Lac)	Date of Disbursement	Remarks
1	Opening Balance (upto 31.03.16)	86464.58111		
2	Addl. Dev	83.33978	01.04.16	Addl Dev Charge 15-16
3	Addl. Dev	43.77416	05.04.16	Addl Dev Charge 15-16
4	Addl. Dev	31.83984	07.04.16	Addl Dev Charge 15-16
5	Addl. Dev	52.08622	11.04.16	Addl Dev Charge 15-16
6	Addl. Dev	107.23773	13.04.16	Addl Dev Charge 15-16
7	Addl. Dev	220.15330	19.04.16	Addl Dev Charge 15-16
8	Addl. Dev	76.84824	21.04.16	Addl Dev Charge 15-16
9	Addl. Dev	20.84026	26.04.16	DSM Interest 2014-15(Paid by APNRL)
10	Addl. Dev	10.01920	26.04.16	Addl Dev Charge 16-17
11	Addl. Dev	432.25696	28.04.16	Addl Dev Charge 16-17
12	Addl. Dev	117.08707	02.05.16	Addl Dev Charge 16-17
13	Addl. Dev	41.65418	04.05.16	Addl Dev Charge 16-17
14	Addl. Dev	9.17422	06.05.16	Addl Dev Charge 16-17
15	Addl. Dev	105.15627	06.05.16	Addl Dev Charge 15-16
16	Deviation Interest	38.50018	06.05.16	Deviation Interest
17	Addl. Dev	35.54178	10.05.16	Addl Dev Charge 16-17
18	Addl. Dev	448.87953	31.05.16	Addl Dev Charge 16-17
19	Addl. Dev	170.51274	29.06.16	Addl Dev Charge 16-17
20	Reactive Energy Charge	530.57497	28.09.16	Reactive Charges_15-16
21	Reactive Energy Charge	1000.00000	26.12.16	Reactive Charges_16-17
27	Reactive Energy Charge	248.26904	31.07.17	Reactive Charges_17-18
28	Reactive Energy Charge	128.44284	29.08.17	Reactive Charges_17-18
29	Reactive Energy Charge	103.22685	26.09.17	Reactive Charges_17-18
30	Reactive Energy Charge	249.14078	31.10.17	Reactive Charges_17-18
31	Reactive Energy Charge	172.20693	30.11.17	Reactive Charges_17-18
32	Reactive Energy Charge	200.00000	15.12.17	Reactive Charges_17-18
33	Reactive Energy Charge	100.00000	05.01.18	Reactive Charges_17-18
34	Reactive Energy Charge	558.45339	06.02.18	Reactive Charges_17-18
35	Reactive Energy Charge	171.95546	06.03.18	Reactive Charges_17-18
36	Reactive Energy Charge	129.35497	04.04.18	Reactive Charges_17-18
37	Reactive Energy Charge	126.21494	07.05.18	Reactive Charges_18-19
38	Reactive Energy Charge	183.31081	06.06.18	Reactive Charges_18-19
39	Reactive Energy Charge	215.58816	05.07.18	Reactive Charges_18-19
40	Reactive Energy Charge	176.54245	03.08.18	Reactive Charges_18-19
41	Reactive Energy Charge	39.54556	06.09.18	Reactive Charges_18-19
42	Reactive Energy Charge	34.03973	01.10.18	Reactive Charges_18-19
43	Reactive Energy Charge	74.57236	05.11.18	Reactive Charges_18-19
44	Reactive Energy Charge	40.66623	04.12.18	Reactive Charges_18-19
45	Reactive Energy Charge	236.89035	02.01.19	Reactive Charges_18-19 & 15-16
46	Reactive Energy Charge	300.04546	05.02.19	Reactive Charges_18-19 & 15-16
	<b>Total</b>	<b>95662.88682</b>		

### Annexure-C13.1

	2017-18				2018-19		
DSM account Reconciliation Status of ER constituents and Inter Regional							
Name of The Utility	Q1(04.07.17)	Q2(09.10.17)	Q3(08.01.18)	Q4(09.04.18)	Q1(19.07.18)	Q2(08.10.18)	Q3(09.01.19)
Inter Regional							
WR	NO	NO	NO	NO	NO	NO	NO
SR	YES	NO	NO	NO	YES	YES	NO
NER	YES	NO	YES	NO	YES	NO	NO
NR	NO	NO	YES	NO	NO	NO	NO
Intra Regional							
BSPHCL	YES	YES	YES	YES	YES	YES	NO
JUVNL	YES	YES	YES	YES	YES	YES	NO
DVC	YES	YES	YES	YES	YES	YES	NO
GRIDCO	YES	YES	YES	YES	YES	YES	YES
WBSETCL	YES	YES	YES	YES	YES	YES	NO
SIKKIM	YES	YES	YES	YES	YES	YES	NO
NTPC	YES	YES	YES	YES	YES	YES	YES
NHPC	YES	YES	YES	YES	YES	YES	NO
MPL	YES	YES	YES	YES	YES	YES	YES
KBUNL	N/A	N/A	N/A	N/A	YES	YES	NO
APNRL	YES	YES	YES	YES	YES	YES	YES
CHUZACHEN(GATI)	YES	YES	YES	YES	YES	YES	YES
NVVN(Ind-Bng)	YES	YES	YES	YES	YES	YES	YES
NVVN(Ind-Nep)	YES	YES	YES	YES	YES	YES	YES
GMR	YES	YES	YES	YES	YES	YES	NO
JITPL	YES	YES	YES	YES	YES	YES	YES
INBEUL	NO	NO	NO	NO	NO	NO	NO
TPTCL (DAGACHU)	YES	YES	YES	YES	YES	YES	YES
JLHEP(DANS ENERGY)	YES	YES	YES	YES	YES	YES	NO
BRBCL	YES	YES	YES	YES	YES	YES	YES
POWERGRID (ER-I)	YES	YES	YES	YES	YES	YES	NO
POWERGRID (ER-II)	N/A	N/A	YES	YES	YES	YES	NO
TUL (TEESTA-III)	YES	YES	YES	YES	YES	YES	YES
DIKCHU	YES	YES	YES	YES	YES	YES	NO
SHIGA (TASHIDING)	N/A	N/A	YES	YES	YES	YES	NO
OPGC	N/A	N/A	N/A	YES	YES	NO	NO
NPGC	N/A	N/A	N/A	N/A	YES	YES	NO

Note:

(1)The dates in the bracket indicates the date of sending the Reconciliation statements by ERLDC to utilities.

(2) YES Indicates that signed reconciliation statement received by ERLDC

(3) NO Indicates that signed reconciliation statement is not received by ERLDC

**Annexure-C13.5****Reconciliation Between Open Access department of ERLDC and SLDCs, STUs**

Sl. No.	STUs / SLDCs Name	Quarter-I	Quarter-II	Quarter-III
	Date of Issuance	16-07-2018	15-10-2018	18-01-2019
1	West Bengal - SLDC and STU	YES	NO	YES
2	DVC - SLDC	YES	YES	NO
3	OPTCL-SLDC and STU	YES	NO	YES

**Reconciliation Between Open Access department of ERLDC and Applicants**

Sl. No.	Applicants Name	Quarter-I	Quarter-II	Quarter-III
	Date of Issuance	25-07-2018	15-10-2018	17-01-2019
1	Calcutta Electric Supply Company	YES	NA	NA
2	Jindal India Thermal Power Limited	YES	NO	YES
3	Jharkhand Urja Vitaran Nigam Limited	NO	NO	NO
4	West Bengal State Distribution Company Limited	YES	NO	NO

## Annexure - C13.7

**Current Status of Letter of Credit (LC) amount against DSM charges for ER constituents***Figures in Lacs of Rupees*

SI No	ER Constituents	No. of weeks in which Deviation Charge payable	No of times payment was delayed during 2017-18	Total Deviation charges payable to pool during 2017-18	Average weekly Deviation Charge liability	LC Amount	Due date of expiry	Remarks
					(C)/52 weeks			
		(A)	(B)	(C)	(D)	(E)	(F)	(G)
1	JUVNL	50	50	10486.92151	201.67157	221.83872	Expired on 31.01.2018	Letter Issued but Not Renewed
2	SIKKIM	26	26	577.40815	11.10400	12.21440	Expired on 07.03.2018	Letter Issued but Not Renewed
3	BSPHCL	48	48	12297.15842	236.48382	260.13220	Expired on 16.11.2018	Letter Issued but Not Renewed
4	NVVN(IND-NEP)	36	7	2742.53984	52.74115	58.01527	Expired on 26.09.2018	Letter Issued but Not Renewed
5	APNRL	18	16	307.81318	5.91948	6.51143	Expired on 31.12.2018	Letter Issued but Not Renewed
6	IND-BARATH	47	47	107.23938	2.06230	2.26853	Not Opened	Not Opened
7	SHIGA ENERGY(TASHIDING)	25	15	148.94874	2.86440	3.15084	Not Opened	Not Opened
8	JLHEP (DANS ENERGY)	37	24	652.25964	12.54345	13.79780	30.11.2019	Opened for 13.79780 Lacs
9	JITPL	18	3	656.5622	12.62620	13.88882	31.03.2019	Opened for 13.88882 Lac
10	GMR	21	10	257.62983	4.95442	5.44986	18.04.2019	Opened for 7.62525 Lacs
11	MPL	12	2	148.83104	2.86214	3.14835	31.03.2019	Opened for 3.14835 Lac
12	CHUZACHEN	9	4	43.51171	0.83676	0.92044	31.03.2019	Opened for 0.92044
13	TPTCL	49	7	2092.89162	40.24792	44.27271	31.03.2019	Opened for 112.03686 Lacs
14	BRBCL	21	4	198.25119	3.81252	4.19378	30.04.2019	Opened for 4.19378 Lacs
15	TEESTA-III(TUL)	12	2	1039.16725	19.98399	21.98238	05.06.2019	Opened for 21.98238 Lacs
16	SNEHA KINETIC(DIKCHU)	9	7	53.96014	1.03770	1.14146	20.05.2019	Opened for 1.14146 Lacs