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GOVERNMENT OF INDIA
MINISTRY OF POWER
EASTERN REGIONAL POWER COMMITTEE
14 Golf Club Road, Tollygunge, Kolkata 700033
www.erpc.gov.in, mserpc-power@nic.in

No. ERPC/TCC&Committee/14/2016/H2264-H2333 Date: 8th August 2016

To:

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

Subject: Minutes of 33rd ERPC & TCC Meetings.

Sir,

The minutes of the 33rd TCC & ERPC meetings held on 24th & 25th June 2016 at Patna have been issued and uploaded on www.erpc.gov.in. As per the decision of ERPC distribution of hard copies of the Minutes of Meeting is discontinued as a Go Green initiative.

Yours faithfully,

(A.K. Bandyopadhyay)
Member Secretary

Encl. As above.

Distribution : ERPC Members

1. Chairperson, ERPC & Chairman-cum- Managing Director, Bihar State Power Holding Company Ltd., Vidyut Bhavan , Bailey Road, Patna-800021.
2. Managing Director, Bihar State Power Transmission Company Limited, Vidyut Bhavan , Bailey Road, Patna-800021.
3. Managing Director, South Bihar Power Distribution Company Limited, Vidyut Bhavan , Bailey Road, Patna-800021.
4. Chairman & Managing Director, West Bengal State Electricity Distribution Company Ltd., Vidyut Bhavan, 7th Floor, Block-DJ, Sector-II, Bidhannagar,Kolkata-700091.
5. Managing Director, West Bengal State Electricity Transmission Company Ltd., Vidyut Bhavan, 8th Floor, Block-DJ, Sector-II, Bidhannagar,Kolkata-700091.
6. Chairman & Managing Director, West Bengal Power Development Corporation Ltd., Bidyut Unnayan Bhavan, 3/C, Block LA , Sector-III, Bidhannagar, Kolkata-700098.
7. Managing Director, Durgapur Projects Ltd., Administrative Building, Durgapur-713201, West Bengal.
8. Principal Chief Engineer-cum-Secretary, Energy & Power Department, Govt. of Sikkim, Kazi Road, Gangtok – 737101, Sikkim.
9. Chairman-cum-Managing Director, Odisha Power Transmission Corporation Ltd., Janpath, Bhubaneswar - 751022.
10. Chairman-cum-Managing Director, GRIDCO Ltd., Janpath, Bhubaneshwar-751022.
11. Chairman-cum-Managing Director, OHPC Ltd., Orissa State Police Housing & Welfare Corporation Bldg. Vanivihar, Janpath, Bhubaneswar- 751022.
12. Managing Director, OPGC Ltd., Zone-A, 7th Floor, Fortune Towers, Chandrasekharpur, Bhubaneswar-751023.
13. Chairman & Managing Director, Jharkhand Urja Vikas Nigam Limited , Engineering Building, HEC, Dhurwa, Ranchi-834004.
14. Managing Director, Jharkhand Urja Sancharan Nigam Limited , Engineering Building, HEC, Dhurwa, Ranchi-834004.
15. Managing Director, Jharkhand Bijli Vitaran Nigam Limited , Engineering Building, HEC, Dhurwa, Ranchi-834004.
16. Managing Director, Tenughat Vidyut Nigam Ltd., Hinoo, Doranda, Ranchi – 834002
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 (Finance), 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. General Manager, ERLDC, POSOCO, 14 Golf Club Road, Tollygunge, Kolkata – 700033.
23. Chief Executive Officer, POSOCO, National Load Dispatch Center, B-9, Qutab Institutional Area, Katwaria Sarai,New Delhi-110016.
24. Director (C&O), PTC India Ltd., 2nd floor, NBCC Tower,15 Bhikaji Cama Place, New Delhi-110066.
25. Chief Executive Officer, NTPC Vidyut Vyapar Nigam Limited, SCOPE Complex, Core-3, 7th Floor, Lodhi Road, New Delhi-110003.
26. Managing Director, Tata Power Trading Company Limited, B12/13, 2nd Floor, Shatabdi Bhavan, Sector-4, Noida-201301, Uttar Pradesh.
27. Managing Director, CESC Ltd., CESC House, 1 Chowringhee Square, Kolkata-700001.
28. Chief Executive Officer, Maithon Power Ltd., MA-5, Gogna Colony, P.O.-Maithon Dam, Dist.-Dhanbad, Jharkhand-828207.
29. Managing Director, Adhunik Power & Natural Resources Ltd., Lansdowne Towers, 5th Floor, 2/1A Sarat Bose Road, Kolkata-700020.
30. Chief Operating Officer, 4x600 MW IPP, Vedanta Ltd., Bhurkahamunda, P.O.-Sripura, Jharsiuguda, Odisha-768202.
31. Director & COO, GMR Kamalanga Energy Ltd., 29 Satyanagar, Bhubaneswar-751007.
32. President & Director (Projects), Gati Infrastructure Private Limited, 268 Udyug Vihar, Pahse-IV, Gurgaon-122016, Haryana.
33. Chief Executive Officer, Jindal India Thermal Power Limited, Plot No-12, Sector-B1, Local Shopping Complex, Vasant Kunj, New Delhi-110070.
34. Chairman & Managing Director, Dans Energy Private Limited, 5th Floor, Building No.8, Tower-C, DLF Cyber City, Phase-II, Gurgaon-12202, Haryana.

Distribution : TCC Members

1. Chairperson, TCC & Director (Project), Bihar State Power Transmission Company Limited, Vidyut Bhavan , Bailey Road, Patna-800021.
2. Chief Engineer (Commercial), Bihar State Power Holding Company Ltd., Vidyut Bhavan , Bailey Road, Patna-800021.
3. Director (Project), South Bihar Power Distribution Company Limited , Vidyut Bhavan , Bailey Road, Patna-800021.
4. Director (Operations), West Bengal State Electricity Transmission Company Ltd., Vidyut Bhavan, 8th Floor, Block-DJ, Sector-II, Bidhannagar, Kolkata-700091.
5. Director (R&T), West Bengal State Electricity Distribution Company Ltd., Vidyut Bhavan, 7th Floor, Block-DJ, Sector-II, Bidhannagar, Kolkata-700091.
6. Director (O&M), WBPDCL, Bidyut Unnayan Bhavan, 3C, Block-LA, Sector-III, Bidhannagar, Kolkata-700098.
7. General Manager I/C (Corporate Technical), Durgapur Projects Ltd., Administrative Building, Durgapur-713201, West Bengal.
8. Chief Engineer (HQ), Energy & Power Dept., Govt. of Sikkim, Kazi Road, Gangtok-737101.
9. Chief General Manager (O&M), Odisha Power Transmission Corporation Ltd., Janpath, Bhubaneswar - 751022.
10. Director (Commercial), GRIDCO Ltd., Janpath, Bhubaneswar-751022.
11. Director (Operation), Orissa Power Generation Corporation Ltd, Zone-A, 7th floor, Fortune Towers, Chandrasekharpur, Bhubaneswar-751023.
12. Director (Operation), Orissa Hydro Power Corporation Ltd, Orissa State Police Housing & Welfare Corporation Building, Vanivihar Chowk, Janpath, Bhubaneswar-751022.
13. Chairman & Managing Director, Jharkhand Urja Vikas Nigam Limited, Engineering Building, HEC, Dhurwa, Ranchi-834004.
14. Chief Engineer (Trans. O&M), Jharkhand Urja Sancharan Nigam Limited , Engineering Building, HEC, Dhurwa, Ranchi-834004.
15. Managing Director, Jharkhand Bijli Vitaran Nigam Limited , Engineering Building, HEC, Dhurwa, Ranchi-834004.
16. General Manager, Tenughat TPS, Lalpania, Dist- Bokaro, Jharkhand-829149.
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., 2nd floor, Lok Nayak Jai Prakash Bhawan, Dak Bunglow Chowk, Patna-800001.
20. Regional Executive Director (ER-II), NTPC Ltd., 3rd Floor, OLIC Building, Plot No.N-17/2, Nayapalli, Bhubaneswar-751012.
21. Executive Director (O&M), NHPC Ltd., NHPC Office Complex, Sector-33, Faridabad-121003, Haryana.
22. Executive Director (ER-I), Power Grid Corporation of India Ltd, Alankar Place, Boring Road, Patna-800001.
23. Executive Director (ER-II), Power Grid Corporation of India Ltd, CF-17, Action Area-I, Newtown, Rajarhat, Near Axis Mall, Kolkata-700091.
24. General Manager, ERLDC, POSOCO, 14 Golf Club Road, Kolkata –700 033.
25. Chief Executive Officer, POSOCO, National Load Dispatch Center, B-9 Qutab Institutional Area, Katwaria Sarai,New Delhi-110016.
26. Executive Director (Marketing), PTC India Ltd., NBCC Tower, 15 Bhikaji Cama Place, New Delhi-110066.
27. General Manager (BD&IT), NTPC Vidyut Vyapar Nigam Limited, SCOPE Complex, Core-3, 7th Floor, Lodhi Road, New Delhi-110003.
28. The Head (Marketing), Tata Power Trading Company Limited, B-12/13, 2nd Floor, Shatabdi Bhavan, Sector-4, Noida-201301, Uttar Pradesh.
29. Executive Director (CS & SO), CESC Ltd, CESC House, 1 Chowringhee Square, Kolkata-700001.
30. The Chief (O&M), Maithon Power Ltd., MA-5, Gogna Colony, P.O.-Maithon Dam, Dist.-Dhanbad, Jharkhand-828207 .
31. Director, Adhunik Power & Natural Resources Ltd., Lansdowne Towers, 5th Floor, 2/1A Sarat Bose Road, Kolkata-700020.
32. Sr. Vice President (Power), 4x600 MW IPP, Vedanta Ltd., Bhurkahamunda, P.O.-Sripura, Jharsiuguda, Odisha-768202.
33. Director & COO, GMR Kamalanga Energy Ltd., 29 Satyanagar, Bhubaneswar-751007.
34. Sr. General Manager (E), Chuzachen HEP, Gati Infrastructure Private Limited, Lower Bering Karabari, Pakyong, East Sikkim-737106.
35. Chief Executive Officer, Jindal India Thermal Power Limited, Plot No-12, Sector-B1, Local Shopping Complex, Vasant Kunj, New Delhi-110070.
36. Chairman & Managing Director, Dans Energy Private Limited, 5th Floor, Building No.8, Tower-C, DLF Cyber City, Phase-II, Gurgaon-12202, Haryana.

MINUTES
OF
33rd ERPC MEETING

Date: 25.06.2016

Place : Patna

Index

EASTERN REGIONAL POWER COMMITTEE

MINUTES OF THE 33rd MEETING OF EASTERN REGIONAL POWER COMMITTEE

Date: 25th June 2016 **Place: Patna**

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

बिहार सरकार के माननीय उर्जा मंत्री श्री बिजेंद्र प्रसाद यादव इस अवसर पर उपस्थित थे | उन्होंने सभी प्रतिनिधियों का स्वागत किया और निम्नलिखित विषयो पर प्रकाश डाला|

1. पूर्वी क्षेत्र में स्वतंत्रता के बाद पॉवर सेक्टर में महत्वपूर्ण बदलाव आया| आजादी के ठीक बाद डीवीसी ही एकमात्र सरकारी विद्युत् संस्था थी| इसके अलावा, सी.ई.एस.सी, पी.ई.एस.यु जैसे गैर सरकारी विद्युत् संस्थान भी थे| कुछ समय बाद राज्य विद्युत् बोर्डो का गठन हुआ| बीसवी शताब्दी के अंत तक विद्युत् सेक्टर का क्रमशः उन्नति हुआ| यद्दपि, विकास ज्यादातर शहर केन्द्रित रहा|

2. 21 वी शताब्दी के शुरुवात में एवं विद्युत् अधिनियम 2003 के उपरांत विद्युत् सेक्टर के विकास ने एक नया मोड़ लिया| यह महसूस किया गया कि ग्रामीण क्षेत्र में जीविका में सुधार लाने के लिए एवं गरीबी का मुकाबला करने के लिए वहां विद्युत् पहुचना अनिवार्य है

3. पूर्वी क्षेत्र में कोयला का अधिक सम्पद होने के कारण यह देश का एक महत्वपूर्ण अंग है| इस क्षेत्र में ताप विद्युत् के विकास की अच्छी सम्भावनाये है| इसके अलावा भूटान एवं नेपाल देश भारत देश के पूर्वी क्षेत्र से जुरे है| अतः इन देशों के विशाल जल विद्युत् केन्द्रों से भी बिजली पूर्वी क्षेत्र में उपलब्ध होती है एवं पूर्वी क्षेत्र को भारत का पॉवर हब बनाती है| भारत के पूर्वी क्षेत्र से बांग्लादेश विद्युत् प्रणाली भी जुरा हुआ है| अंतर्राष्ट्रीय विद्युत् विनिमय का यह एक और सुनेहरा अवसर है|

4. इस साल एन.टी.पी.सी. के फरक्का सुपर थेर्मल पॉवर स्टेशन (एफ.एस.टी.पी.एस) में पानी की कमी एक गंभीर मुद्दा रहा है| वर्षा की कमी और भारत बांग्लादेश गंगा जल सहभाजन समझौता के कारण फ़रवरी-मार्च, 2016 के दौरान इस वर्ष फरक्का फीडर कैनाल में पर्याप्त पानी नहीं मिल पाया| इसलिए एफ.एस.टी.पी.एस के यूनिटों को एक एक करके बंद करना परा| एन.टी.पी.सी. को इस समस्या का समाधान शीघ्र निकालना होगा| भारत सरकार को भी इस मुद्दे पर विस्तृत चर्चा करने की आवश्यकता है|

   जलवायु परिवर्तन के कारण ऐसी और घटनाये भविष्य में घटेंगी| विकसित देशों ने विश्व जलवायु परिवर्तन के शमन की ज्यादातर जिम्मेदारियां विकासशील देशों को सौप दिया है| यह उचित नहीं है|

5. दुसरे क्षेत्रों की तुलना में पूर्वी क्षेत्र में अत्यधिक ट्रांसमिशन एवं डिस्ट्रीब्यूशन लॉस एक चिंता का विषय है| पूर्वी क्षेत्र में कम औद्योगीकरण एवं अत्यधिक घरेलु भार भी इसका एक कारण है| ओपन एक्सेस पर भी विस्तृत चर्चा की जरुरत है|

   उपरोक्त सभी विषयों के ऊपर विस्तृत चर्चा एवं सुझाव के लिए एक समिति का गठन होना चाहिए|

6. जनरेशन टैरिफ पर भी चर्चा की आवश्यकता है| विगत वर्षों में भारत सरकार की फ्रेट समानता निति का लाभ लेकर अन्य क्षेत्रों में नये ताप विद्युत् केंद्र स्थापित हुए हैं जिनको कोयला पूर्वी क्षेत्र से मिलता है| वर्तमान में उन केन्द्रों के जनरेशन टैरिफ का फिक्स्ड कास्ट पूर्वी क्षेत्र के ताप विद्युत् केन्द्रों से काफी कम हैं| इन सभी असमानताओं को दूर करने के लिए नेशनल टैरिफ पर विचार होना चाहिए|

7. कोयले की ट्रांसपोर्टेशन के लिए अंतर्देशीय जल पथ का व्यव्हार करना जरुरी है| इससे रेल पर निर्भरता एवं परिवहन पर खर्च भी कम होगा जिससे विद्युत् की कीमतों में कटौती आयेगी|

अंत में उन्होंने सभी प्रतिनिधियों को बिहार की राजधानी पटना में आने और बिहार को यह महत्वपूर्ण बैठक आयोजित करने हेतु अवसर देने के लिए धन्यवाद ज्ञापन किया|

Shri T.K. Barai, Member (GO&D), CEA, highlighted the following points is his address:

Ministry of Power, Govt. of India, has embarked on number of reform initiatives and has also achieved significant improvement in Indian power sector. The Government has initiated programme on 24x7 affordable power for all by 2019. Towards this mission following remarkable achievements took place in the year 2015-16 :

- Highest ever 23976 MW conventional power capacity addition
- Highest ever 28114 circuit km. of transmission line has been laid
- Highest ever 128403 MVA sub-station capacity added over two year period 2014-16
- 7108 villages have been electrified out of total 18452 un-electrified villages
- UDAY comprehensive power sector reform to turnaround DISCOMs
- Vidyut Pravah app to monitor real time electricity price and availability

ERPC plays very important role in development of power sector in Eastern Region. The sub-committees on operation, protection, commercial, state level standing committee on transmission planning etc. discuss issues related to smooth and integrated operation of the grid including future growth and planning. The issues referred by these sub-committees are then discussed in the next higher level i.e. TCC followed by final approval by ERPC. Therefore, there is immense importance of effective participation of all stakeholders in TCC and ERPC. The TCC and ERPC should endeavour to take consensus decisions which would retrofit with decision/policy o Govt. of India. As a member of ERPC, we at CEA are always ready to help ERPC and its constituents to achieve its goals.

Since last few years ERPC is playing a vibrant role in the country and have initiated various schemes and projects which may create sustainable improvement in the operation of the Eastern Grid.

With members' support Secretariat had already implemented Document Management System and initiated action for creation of its own Apps and grid connected solar roof top power plant. Academic initiatives taken by secretariat for human resource development in association with esteemed institutes of the country like IITs shall create an immense value addition.

In conclusion, he thanked Bihar, the host, for excellent arrangement and hospitality.

Shri Pratyaya Amrit, Chairperson, ERPC & Principal Secretary, Energy Department, Govt. of Bihar and CMD, BSPHCL, welcomed the members of ERPC, TCC, guests from Bhutan and all other participants. He highlighted the following points is his address:

- During the last few years the State of Bihar has witnessed significant growth in electricity sector. The peak demand met which was 1751 MW in August 2012 has risen to 3360 MW in May 2016. During the last couple of years the growth was almost 25%.
- Rural electrification has been intensified for the last couple of years. During last year 1686 villages were electrified against target of 1632 villages given by Government of India, achieving more than 100% of the target. The remaining 1287 villages will be electrified by June 2017, achieving 100% electrification of villages.
- 24x7 Power For All is the mission of Government of India. Apart from 100% rural electrification by June 2017, Government of Bihar has also embarked upon to provide electricity connection to remaining 50 lakh APL consumers, 20 lakh by March 2017 and balance 30 lakh by March 2018. Rs.19000 crore has been earmarked for this purpose in the State Plan.
- In its endeavour to development of power sector, Govt of Bihar is receiving all round support from its neighbouring States, CEA and ERPC. Team of engineers from Bihar has visited West Bengal, Madhya Pradesh and Delhi for knowledge sharing on best practices. Bihar is in the process of implementing its maintenance policy in line with the West Bengal model with some modifications.
- Capacity Building Program undertaken by ERPC Secretariat on Power System Protection and related matters needs appreciation and encouragement.
- TCC has discussed number of issues yesterday, a few of which have been referred to ERPC for further deliberation and decision. A few issues like Participation Fee etc. have been directly place before the ERPC for deliberation and decision.

In conclusion, he once again warmly welcomed all delegates, wished their pleasant stay in Patna and wished the meeting a grand success.

ITEM NO.A1:	**CONFIRMATION OF THE MINUTES OF 32nd ERPC MEETING**

The minutes of the 32nd ERPC meeting held on 20th February 2016 at Ranchi were circulated vide letter no. ERPC/TCC & Committee/14/2016/H4410-H4477 dated 3rd March 2016.

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

Members may confirm the minutes of 32nd ERPC meeting.

Deliberation in the ERPC meeting

Members confirmed the minutes of 32nd ERPC meeting.

PART B: ISSUES REFERRED TO ERPC BY TCC IN ITS 33rd MEETING HELD YESTERDAY

ITEM NO. B1:	Status of construction of 400 kV Sterlite-Jharsuguda D/C sections

Several deliberations were held in this forum on the issue of construction of 400 kV Sterlite – Jharsuguda D/C dedicated line of Vedanta Ltd (formerly known as Sesa Sterlite Ltd).

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

TCC advised Vedanta to strictly adhere to the schedule.

In 32nd TCC, Vedanta assured that they will commission the line by 15th July, 2016.

However, TCC advised Vedanta to strict to the target date given in the 31st TCC/ERPC Meeting i.e. April, 2016 and advised to update the schedule in OCC meetings.

In 122nd OCC, Vedanta updated that 51 out of 66 foundations and installation of nine towers out of 64 have been completed.

In 4th SSCM, the committee discussed in line with the direction from CERC (in CERC vide order dated 07.I0.2015 on Petition No. 112/TT'/2013) and decided that the LILO may be removed as the target date fixed by 31st & 32nd TCC/ERPC (i.e. April, 2016) was not adhered to and the same was recommended to SCM.

In 18th SCM, it was decided that decision of 33rd TCC/ERPC will be strictly complied.

TCC may decide.

Deliberation in the TCC meeting

Vedanta updated that 59 out of 66 foundations and installation of ten towers out of 64 have been completed. Vedanta informed that they will commission their dedicated line by November, 2016.

Vedanta pleaded TCC for extension of dead line for removal of LILO till November, 2016 as a last extension.

Some members of TCC felt Vedanta to give an undertaking in affidavit form to CTU and ERPC stating that the dedicated line will be completed by 30.11.2016. Failing which, CTU/ERLDC are authorized to open the LILO with effect from 01.12.2016. No further discussion would be done in ERPC forum on extension/disconnection of LILO after 01.12.2016.

Some members of TCC however, were of the view that sufficient extension has already been given to Vedanta and Vedanta failed to comply. Therefore the LILO should be opened immediately. MS, ERPC informed that CERC has given order to remove LILO connections within 6 months of date of synchronisation and Vedanta had taken more than 5 years.

TCC referred the issue to ERPC for further decision with the following options:

1. *The LILO may be removed immediately as the target date fixed by 31st & 32nd TCC/ERPC (i.e. April, 2016) was not adhered to by Vedanta.*
2. *Vedanta to give an undertaking in affidavit form to CTU and ERPC stating that the dedicated line will be completed by 30.11.2016. Failing which, CTU/ERLDC are authorized to open the LILO with effect from 01.12.2016. No further discussion would be done in ERPC forum on extension/disconnection of LILO after 01.12.2016*

ERPC may decide.

Deliberation in the ERPC meeting

Vedanta pleaded ERPC for extension of dead line for removal of LILO till November, 2016 as a last extension and assured that maximum efforts will be made to complete the line in schedule. It was also confirmed that dead line for 30th November was asked for after consideration of the ensuing rainy season into account.

ERPC felt that responsibility for the delay in construction of the dedicated system lies with Vedanta only. However, as a final measure, ERPC decided that Vedanta should give an undertaking in affidavit form to CTU and ERPC stating that the dedicated line will be completed by 30.11.2016. Failing which, CTU/ERLDC is authorized to open the LILO with effect from 01.12.2016. No further discussion would be entertained in ERPC forum on extension/disconnection of LILO after 01.12.2016 and then onwards no power transaction will be allowed through LILO on commercial purpose.

ITEM NO. B2:	**Status of construction of Chuzachen bay at Rangpo S/s.**

Construction of bays at Rangpo S/s meant for evacuation of power from Chuzachen has been undertaken by Department of Power, Govt of Sikkim, under consultancy with Powergrid.

Subsequently MoU was signed between Sikkim and Powergrid in April, 2015 for this work.

The progress made on this issue has been deliberated upon in several OCC and TCC/ERPC forums.

In 32nd TCC, Sikkim informed that the cost estimate from Powergrid was received recently and therefore after studying the same tendering will be done tentatively within a month.

TCC advised Sikkim to expedite the tendering work.

In 122nd OCC held on 9.6.16 and in 18th SCM Sikkim informed that tendering work is in final shape and December'17 is fixed as tentative date completion of the work.

In regard to the importance of the project Sikkim should strictly adhere to a roadmap.

Sikkim may place the roadmap. TCC may advise.

Deliberation in the TCC meeting

Sikkim informed that they will float the tender within a week and December, 2017 is fixed as tentative date for completion of the work.

TCC felt that Sikkim is not serious about construction of the bay and advised Sikkim to take positive action to complete the construction within the target date concerning the importance of the project.

Sikkim informed that they have requested PGCIL for some modifications in tender documents, therefore it may take some more time. CE (PSP), CEA observed that Sikkim should take initiative to get the work done in coordination with other parties.

TCC advised Sikkim to place the road map for construction of the bay in ERPC meeting tomorrow.

Sikkim may update.

Deliberation in the ERPC meeting

Sikkim placed the road map for construction of the bays as follows:

- *Tender will be floated by July 2016*
- *Bid will be opened by August 2016*
- *Work will be awarded by September 2016*
- *Bay will be commissioned by December, 2017*

ERPC advised Sikkim to strictly follow the schedule and update OCC forum on regular basis.

ITEM NO. B3:	**Status of construction of 400 kV Ind-Barath-Jharsuguda D/C line.**

In 122nd OCC, IBEUL updated the status as follows:

- All the 125 towers foundations have been completed and 125 have been erected.
- Due to route alignment one tower (i.e. 126th tower) has been increased which is under construction.
- Stringing work of 36.81 km out of 39.74 km line has been completed.
- The bay work at 400 kV Jharsuguda (Kenapalli) S/s has also been completed.

- The line will be commissioned by 30th June, 2016.

In 4th SSCM, the committee discussed in line with the direction from CERC (in CERC vide order dated 07.I0.2015 on Petition No. 112/TT'/2013) and decided that the LILO may be removed if the target (i.e. June, 2016) was not adhered to and the same was recommended to SCM.

In 18th SCM, IBEUL assured that dedicated line will be completed by July'16.

IBEUL may update.

Deliberation in the TCC meeting

TCC decided that in line with the direction from CERC (in CERC vide order dated 07.I0.2015 on Petition No. 112/TT'/2013) the LILO may be removed if the target (i.e. July, 2016) is not adhered by Ind-Barath.

ERPC may guide.

Deliberation in the ERPC meeting

It was informed that only stringing of 600 m line is pending and the dedicated line will be commissioned within the schedule.

ERPC decided that on and from 1st August, 2016 IBEUL will not be permitted to do any transaction—Infirm or firm through the LILO

ITEM NO. B4:	Status of PLCC system installed in Eastern Region

a) Restoration of PLCC system of important lines of JUSNL

In 119th OCC, JUSNL informed that the following:

i) In 220 KV Chandil –Ramchandrapur line auto-reclosure has been enabled and linked with PLCC panels on 09.03.16.
ii) In 220 KV Chandil –Ranchi line auto-reclosure has been enabled and termination done in PLCC panels (Auto-reclosure will be in service after testing of PLCC scheduled on 22.03.16)
iii) In 220 KV Chandil –Santaldih line auto-reclosure has been enabled and termination done in PLCC panels at Chandil end but due to non-availability of PLCC panels at Santaldih(WBPDCL) end the A/R and PLCC scheme could not be activated.
iv) In 220 KV Ramchandrapur-Joda line auto-reclosure has been enabled and termination done in PLCC panels at Ramchandrapur end but due to non-availability of PLCC panels at Joda (OPTCL) end the A/R and PLCC scheme could not be implemented.

Further, it was informed that JUSNL is ready to share their standby PLCC panels (BPL make) with WBPDCL (for Snataldih end) and OPTCL (for Joda end) to complete the PLCC schemes of both the above lines.

OCC advised WBPDCL and OPTCL to accept the JUSNL offer and implement the PLCC scheme at the earliest for both the 220 kV lines.

Subsequently, JUSNL vide letter dated 13.04.2016 has asked for consent of OPTCL and WBPDCL for cost estimate details for further needful action.

In 120th OCC, WBPDCL informed that they are in receipt of the JUSNL letter and the decision of their higher authority will be communicated soon.

OPTCL informed that they have some queries regarding the AMC of the PLCC panels as these were purchased in 2006. They will communicate their queries to JUSNL.

OPTCL vide letter dated 30.04.16 has communicated JUSNL that the PLCC set should be commissioned & under AMC of the manufacturer for trouble free and reliable service.

In 121st OCC meeting, JUSNL was advised to respond to the queries of OPTCL and WBPDCL at the earliest.

In 122nd OCC, WBPDCL informed that they will commission the autoreclose feature at 220kV Santaldih with implementation of SAS which is under process.

Member Secretary clarified that the issue of activation PLCC in JUSNL is very seriously taken by CERC. So in view of that other end like Joda of OPTCL & Santaldih of WB need to be restored with utmost care.

Therefore, OCC advised JUSNL, OPTCL and WBPDCL to restore the PLCC system at Joda and Santaldih at the earliest with mutual coordination.

JUSNL, OPTCL and WBPDCL may update.

Deliberation in the TCC meeting

ERPC Secretariat informed that section 142 on JUSNL is not yet withdrawn and has been deferred by six months on request of ERPC. As JUSNL had informed that the commissioning of PLCC is held up due to non-availability of PLCC system at other end (OPTCL and WBPDCL), CERC may impose penal provision on OPTCL and WBPDCL for the same.

JUSNL informed that they are ready to share their standby PLCC panels (BPL make) at book value with WBPDCL (for Santaldih end) and OPTCL (for Joda end) to complete the PLCC schemes of both the above lines.

WBPDCL and OPTCL informed that the panels are 2006 manufacture and not used till date. The panels may not work properly therefore JUSNL should take care of the AMC for these panels.

JUSNL did not agree to the AMC of these panels.

OPTCL and WBPDCL informed that purchase of new panels would take minimum 6 month time.

TCC felt that CERC dead line could be met only with the existing panels offered by JUSNL or any other matching panels available with OPTCL and WBPDCL.

TCC advised JUSNL, OPTCL and WBPDCL to discuss the issues bilaterally and restore the PLCC system by July 2016 positively.

ERPC may guide.

Deliberation in the ERPC meeting

WBPDCL and OPTCL agreed to settle the issue bilaterally with JUSNL. JUSNL was advised to resolve the AMC related issues with West Bengal & Odissa. All are requested to inform the development to CERC .

However ERPC advised JUSNL, OPTCL and WBPDCL to get the PLCC system restored for both the lines by July 2016 positively.

b) Restoration of PLCC system of important lines of OPTCL, WBSETCL and BSPTCL

OPTCL vide mail dated 16.03.2016 informed the PLCC communication status of the important links under OPTCL as follows:
1. Jeypore(PG)-Jayanagar (Commn. in OPGW exists)
2. Rourkela(PG)-Tarkera (Commn. in OPGW exists)
3. Rengali(PG)-Rengali S/Y (Proposal for Commn. in OPGW is pending)
4.Indravati(PG)-Indravati(PH) (Proposal for Commn. in OPGW pending)
5.Baripada(PG)-Baripada (Tendering in Progress for OPGW)
6.Baripada(PG)-Rairangpur (Tendering in Progress for OPGW)

OCC advised BSPTCL and WBSETCL to place their roadmap.

BSPTCL and WBSETCL may place their roadmap for restoration of PLCC for important lines using their own resources.

Deliberation in the TCC meeting

It was informed that PLCC of the following lines needs to be installed:

WBSETCL system:

- *132kV Siliguri-NBU S/C line*
- *132kV Siliguri-NJP S/C line*

- *132kV Malda (WB)-Malda(PG) D/C line*
- *132kV Birpara(WB)-Birpara(PG) D/C line*

BSPTCL system
- *220kV Patna-Fatua S/C line*
- *220kV Patna-Khagul S/C line*
- *220kV Gaya-Dehri D/C line*
- *220kV Gaya-Bodhgaya D/C line*

TCC advised BSPTCL and WBSETCL to place the roadmap in ERPC meeting tomorrow for restoration PLCC system.

BSPTCL and WBSETCL may place the roadmap.

Deliberation in the ERPC meeting

WBSETCL updated status of PLCC system as follows:

- *132kV Siliguri-NBU S/C line----PLCC system is healthy*
- *132kV Siliguri-NJP S/C line---PLCC system is healthy*
- *132kV Malda (WB)-Malda(PG) D/C line ---PLCC system is healthy*

However for all the above three lines PLCC linked protection system will be restored by 6months.

PGCIL informed that 132kV Birpara(WB)-Birpara(PG) D/C line length is 500 m and PLCC is not feasible for this type of short line. ERPC referred the issue to PCC meeting for further study.

BSPTCL updated status of PLCC system as follows:

- *220kV Patna-Fatua S/C line---Will commission the PLCC system within 3 months*
- *220kV Patna-Khagul S/C line---Will commission the PLCC system within 3 months*
- *220kV Gaya-Bodhgaya D/C line ---Will commission the PLCC system within 3 months*
- *220kV Gaya-Dehri D/C line---The line is under breakdown. After coming of line in service, the work will be completed within another one month.*

ITEM NO. B5:	Submission of detailed disturbance report for PCC Meeting

Constituents of Eastern Region on many occasions in the recent past have failed to provide requisite data and detailed timely report with DR., EL etc. to ERPC/ERLDC for disturbances in respective control area. Thereby PCC faced immense difficulties in meaningful analysis and concluding the incidences with remedial actions/suggestions for system improvement. As a result time and again same type of disturbances are plaugeing the grid. This is a serious concern for the eastern grid.

The issue was discussed earlier also in many TCC and ERPC meetings. But situation did not change. Till recently in PCC meetings disturbances are presented in a lackluture way---without SLD, without DR without proper relay details etc. This is a gross violation of IEGC. .

Therefore PCC in its last meeting (44th) held on 8.6.16 decided that from now onwards for all the disturbances constituents should submit a detailed disturbance report, at least 10 days before PCC meeting, containg the following information:

- ***Single line diagram of the affected area/region***
- ***Pre fault conditions***
- ***Tripping incident details with proper relay indication***
- ***Disturbance record***
- ***Analysis of the tripping incident***
- ***Conclusion***
- ***Remedial measures taken***

These reports will be placed as agenda item of PCC meeting along with further queries by ERPC/ERLDC, if any.

Subsequently in PCC meeting concerned constituents have to place their incidences with all details.

Noncompliance of the above mentioned PCC decision will be taken a violation of clause 5.9 of IEGC and will be accordingly reported to CERC

Moreover even after repeated advice from TCC/ERPC, representatives from SLDCs are still not attending PCC meeting in most of the cases.

Considering the gravity of the situation TCC may advice.

Deliberation in the TCC meeting

Chairperson, TCC opined that unfortunately operators focus on restoration of the line during tripping incidences rather than analysing and taking corrective measures. Therefore, constituents should develop an internal mechanism for detailed analysis of the tripping incidences.

TCC felt that submission of above details is very important for fruitful discussion in PCC meeting and arriving at a conclusion. This will help in improving the reliability of the protection system. Only Eastern Region is connected with all the other regions in India and inter-nationally therefore, it is important to maintain the reliability of the transmission network for safe evacuation of power between the regions.

CEA appreciated that the Eastern Region is conducting PCC meetings on monthly basis and informed that power system protection plays a vital role in maintaining the reliability of the grid. The same has been emphasized by the Grid Enquiry Committee on 2012 India Grid Disturbances. Now Govt. of India is granting funds to upgrade the protection system.

After detailed deliberation, TCC decided that all constituents should take serious actions to send the requisite information as bulleted in agenda to ERPC/ERLDC in time. TCC decided that non submission of requisite information will be treated as non-compliance of clause 5.9 of IEGC and will be accordingly reported to CERC.

TCC also advised all constituents to send their SLDC personnel along with concerned officer from protection division to attend the monthly PCC in ERPC.

TCC referred the issue to ERPC for further guidance.

Deliberation in the ERPC meeting

All constituents agreed to submit the requisite information in time and agreed to send their SLDC personnel along with concerned officer from protection division to attend the monthly PCC in ERPC.

ERPC advised secretariat to give regular feedback to board members on non-compliance.

ITEM NO. B6:	**Transfer capability determination by the states**

In order to ensure, safe and secure operation of the grid, the states should carry out the power system study for operational planning and power transfer capability through their respective transmission links with the rest of the grid. It was decided in the NPC meeting that to begin with, power system study for assessment of operational limits / power transfer capability for each state will be done by the concerned RLDC in association with concerned SLDC. Monthly TTC /ATC will be uploaded by the SLDCs at their respective websites and also communicated to concerned RLDC & NLDC subsequently.

In its 118th meeting, OCC advised Odisha SLDC, WBSLDC, DVC & SLDC, Bihar to upload their monthly TTC/ATC on their website. OCC also advised Jharkhand and Sikkim SLDC to initiate the TTC/ATC computations of their control area in-consultation with ERLDC.

In 120th OCC, DVC informed that they are providing the monthly TTC/ATC on their website.WBSETCL informed that they are calculating the TTC/ATC but their website is under construction. Bihar and OPTCL agreed to implement.

JUSNL informed that they are unable to compute the TTC/ATC for their state.

OCC advised JUSNL to interact with ERLDC to get acquainted with the ATC/TTC calculation.

TCC may kindly advise all load-serving entities of Eastern Region to post their respective import/export TTC figures in their websites on monthly basis, together with underlying assumptions, limiting conditions etc.

Concerned constituents may place their roadmap. TCC may guide.

Deliberation in the TCC meeting

It was informed that all the states are computing TTC/ATC except Sikkim and JUSNL. DVC is calculating and uploading in DVC website. BSPTCL is calculating and uploading through a link in BSPHCL website. WBSLDC is calculating but they could not upload due to non-readiness of website. OPTCL is calculating and uploading in website.

TCC felt that grid operator should have the information on how much power they can export and import and they should restrict to that figures in order to avoid major grid disturbances.

Accordingly, TCC advised all the constituents to place the details in monthly OCC meetings till they upload the information in their respective websites.

TCC advised JUSNL to send their representatives to ERLDC so that they could get acquainted with the ATC/TTC calculation procedure. Representative from JUSNL informed that they are ready to send three officers to ERLDC, the names of officers would be shared in tomorrow's ERPC meeting.

ERPC may guide.

Deliberation in the ERPC meeting

JUSNL agreed to send their representatives to ERLDC so that they could get acquainted with the ATC/TTC calculation procedure.

All constituents agreed to compute their own ATC/TCC and submit the same in monthly OCC.

ITEM NO. B7:	**Issues related to post implementation of New SCADA/ULDC scheme**

In 7th PRM meeting, WBSETCL informed that in new SCADA system, problem reporting mechanism and time-limit for resolving the issue is not available. They are not able to report any problem properly as format is not available. WBSETCL requested POWERGRID to provide the same. WBSETCL also informed that Chemtrols has not deployed the quality man power at their control centre. WBSETCL also requested POWERGRID to look into the appropriate man power deployment issue on priority basis so that any eventuality could be addressed in minimum possible time.

DVC also informed that Chemtrols has not deployed the quality man power at their control centres also.

ERLDC informed that ERLDC is also facing same problem and explained that under old SCADA system, deployed engineer were having good knowledge of SCADA, EMS, Networking as well as hardware but in new SCADA system, not a single engineer is having

good working knowledge of SCADA, EMS and Networking also. ERLDC further informed that as per the LOA, Chemtrols has to deploy the expert of software and hardware who are having experience of at least 5 years in the same system.

Chemtrols informed that they are having problem in deploying proper man power at various control centres.

Director (Projects), BSPTCL mentioned that BSPTCL is not feeling the same comfort level in new SCADA system as compared to old SCADA system and requested POWERGRID to look into the matter seriously. He further requested MS, ERPC to call a separate high level meeting to resolve the issue of proper man power deployment at various control centres. He also mentioned that participation from LD & C department of POWERGRID should be must in SCADA PRM meeting being called by ERPC.
MS, ERPC agreed to call a separate high level meeting so that proper man power deputation issue could be addressed.

In special PRM meeting held on 07.06.2016, Constituents emphasised the need for a proper reporting and tracking procedure till the fault is addressed. Members felt that a central fault reporting mechanism with escalation to various levels for appropriate addressing and resolution of the problem with proper timely feedback to the registered problems need to be devised on line wherein one can log a problem and view the status of resolution of the same.

On query, M/s Chemtrols explained the proposed procedure for reporting and rectification of the problems during maintenance phase of the system.

The gist of the "On-Site Support Plan" proposal was as following:

1. The constituent to report the fault/problem in the system as per **Support Ticket Form** (Format attached)
2. Chemtrols to translate it in an Excel format called **Site Issue Tracker** and issue a ticket for each fault/problem reported and
3. Chemtrols site coordinator to immediately to take action to address the problem as per severity level time frame [Level-1]
4. In case the site coordinator is not able to address the problem, he would escalate to Chemtrols expert level support based in Mumbai [Level-2]
5. If Chemtrols Experts at Mumbai are unable to fully address the problem, they will escalate it to OSI [Level-3]
6. The solution provided by OSI will be route to site coordinator(s)

M/s Chemtrols submitted the names of their resources at Level-1 & Level-2.

Members stressed that the reporting and resolution procedure has to be ON-Line and accessible from anywhere to the authorised / bonafide engineer of the constituent to report the problem and monitor the status of resolution till the event is closed. M/s Chemtrols stated that they would develop an appropriate on-line fault reporting and rectification procedure within one month's time.

After detailed discussion, it was decided to follow the present procedure as explained by Chemtrols and Chemtrols was advised to implement the on-line reporting procedure by 7th of July 2016. M/s Chemtrols agreed for the same. However this was agreed that this shall be a part of AMC contract.

TCC may advice.

Deliberation in the TCC meeting

TCC felt that Chemtrol is not extending full cooperation with the constituents and advised PGCIL to look into.

PGCIL informed that Chemtrol is recruiting relevant Engineers and the new single window on-line reporting system will be available by 7th July 2016.

TCC advised PGCIL to arrange demo of the new reporting procedure at ERPC Secretariat before 7th July 2016. To assess the post implementation performance of the project, TCC further advised Secretariat to continue convening quarterly PRM meetings for some more time as is done presently.

ERPC Secretariat informed that JUSNL representative was never attending PRM meetings.

TCC took serious note and advised JUSNL to send their representative in PRM meetings.

PGCIL informed that they have deputed only four engineers for new SCADA system in SLDC, and advised to depute three engineers per shift.

ERPC may guide.

Deliberation in the ERPC meeting

ERPC felt that Chemtrol is not extending full cooperation with the constituents and the situation may become worse in long run.

ERPC advised PGCIL to look into so that Chemtrol should complete the project including AMC in a proper manner.

PGCIL informed that the new single window on-line reporting system will be available by 7th July 2016. It was agreed that a demo of the new reporting procedure will be shown by Chemtrol/PGCIL at ERPC Secretariat before it is made operational.

JUSNL agreed to send their representative in PRM meetings.

JUSNL also agreed to depute three engineers per shift for new SCADA system in SLDC.

ITEM NO. B8:	Farakka Water Shortage : Certification of Availability for Force Majeure event

As per India-Bangladesh water treaty, 1996, water of the Ganga River flowing from India to Bangladesh is to be shared between the two countries. Due to sharing of water with Bangladesh, it was being observed that during certain periods in summer season, the water level in the feeder canal feeding water to Farakka Super Thermal Station of NTPC, is going down to very low level. This was creating shortages of cooling water at Farakka STPS. Taking note of receding water level in the Farakka feeder canal, NTPC envisaged installing lift pumps in Farakka Feeder Canal for pumping water to Farakka during low water level. However, subsequently, the lift pump could not be installed due to technical limitations.

During Feb- March 2016, the water level in Farakka has gone to such a low level that there was no water available for meeting the cooling water requirement. Farakka-1&2 (1600MW) have been designed with open cycle cooling water and no cooling tower is available. Farakka-3 (500MW) has been designed with cooling tower. During the period of Feb-March 2016, even the makeup cooling water was not available leading to shut down of complete Farakka STPS (2100MW) as per details below.

Unit. No.	Date(s) & Time of Shut Down	Date & Time of Revival	Duration of Shut Down (hrs)	Remarks
1.	22-Feb-16 02:06	24-Feb-16 17:33	63.450	Taken out due to poor CW level
1.	26.02.2016, 16.36	22-Mar-16, 04:45	588.150	Taken out due to poor CW level
2.	11.03.2016, 17:17	22-Mar-16 16:24	263.117	Taken out due to poor CW level
3.	11.03.2016, 18:49	22-Mar-16 05:00	250.183	Taken out due to poor CW level
4.	11.03.2016, 23:26	23-Mar-16 05:33	270.117	Tripped due poor CW level
5.	11.03.2016, 19:14	22-Mar-16 18:10	262.933	Tripped due poor CW level
6.	12.03.2016, 12:00	22-Mar-16 02:08	230.133	Taken out due to non availability of CW makeup

Further, the power purchase agreements signed with various beneficiaries provides for Force Majeure event. The stoppage of the units and generation at the Farakka Station is on account of reasons beyond the reasonable control of NTPC and is in the nature of Force Majeure. This has been communicated to all the beneficiaries vide letter dated 18.03.2016.

In view of this, it is proposed that while calculating the availability of Farakka station, Force Majeure period as indicated in the table above may be excluded and the Farakka Availability may be revised as under.

S.N.	Station	Availability now (2015-16)	Revised Availability after excluding the period of Force Majeure event
1	Farakka-1&2	81.29%	84.31%
2	Farakka-3	81.64%	83.84%

In the Commercial Committee meeting (CCM), NTPC explained in details the problem of low flow in the river Ganges and the Ganges water sharing treaty. They also informed that anticipating the problem they had already filed a petition before CERC in 2006 for installation of lift pumps. However, due to erosion of banks the barrage authority had stalled the installation of lift pumps. NTPC requested constituents to consider the issue as a force majeure as it was beyond the control of the generator and accept average availability for the period of outage as circulated with the agenda.

GRIDCO, WBSEDCL and DVC expressed their reservation for considering the outage of FSTPS under force majeure. They expressed concern that this same issue may occur in future frequently and consideration of force majeure and accepting a deemed available status for such period will result in their payment of capacity charges for the period when there was no generation.

Member secretary requested the constituents that the events being in the nature of act of god may be considered as force majeure. He clarified that the issue of Farakka unit shut down due to water shortages in river Ganges may attact clause of force majeure in PPA/tariff regulations which constituents had already accepted. Therefore beneficiaries were requested to agree in principle on deemed availability with separate deliberation/s on computation of deemed availability.

NTPC was requested to place all the latest documents on its petition before CERC in 2006 and subsequent developments.

The issue was referred to TCC by CCM

TCC may decide.

Deliberation in the TCC meeting

NTPC informed that this year in Feb-March the flow in the river Ganga had dipped very much. This, combined with the Indo-Bangladesh water sharing treaty resulted in very low flow of water in the Farakka feeder canal. NTPC further informed that they had taken up the issue in appropriate levels of government and Secretary, Power, Govt. of India had also written to Secretary, Water Resources, Govt. of India in this regard. NTPC further informed that they have made a lot of modifications, including syphoning to limit the impact of low water availability in the feeder canal. The idea of installation of lift pumps was also explored and CERC, in 2006, had approved the scheme. However, the installation of lift pumps was stalled by the barrage authorities due to chances of bank erosion. NTPC is further trying to install submersible pumps for increasing water availability in lean season. NTPC have also

taken into confidence the power secretary, Govt of West Bengal, CMD of WBSEDCL and apprised them of the situation.

GRIDCO did not agree to accept the non-availability of water in feeder canal as force majeure and was of the opinion that NTPC, anticipating the problem, should have taken appropriate measures for solution to the water crisis much earlier. Jharkhand, WBSEDCL agreed with the observations of GRIDCO. WBSEDCL further submitted that the distribution companies are not financially indemnified if the generating station fails to supply power under force majeure conditions. While agreeing with GRIDCO and WBSEDCL, BSPHCL pointed out that the discoms are the most affected as they have to pay for force majeure conditions and requested CEA to take up the issue of compensation of discoms in case of force majeure conditions at appropriate forum. DVC advised NTPC to approach the central Commission for an order on this matter

MS informed that indemnification of discoms are beyond the scope of PPA. He informed that although the Indo-Bangladesh treaty was signed in 1996 and water shortage issues were there but even then NTPC never requested for force majeure treatment in the last 20 years. ERPC Secretariat was of the view that this year, the situation may have become so abnormal that NTPC was compelled to apply for force majeure clause of the PPA for the first time. The instance case, in view of the Secretariat, was definitely beyond the control of the generator and will be prudent to be treated as such. Extent of certification of availability may be decided subsequently. However, NTPC should take necessary steps to find a technical solution to the problem so that this force majeure claim does not become a regular feature.
Chief Engineer(PSP), CEA inquired whether closed cycle cooling could be established for Farakka Stage-I and Stage-II units. NTPC informed that the same may not be technically and financially viable as Farakka was a first generation thermal station.

It was decided that the views of the constituents and the view of the Secretariat may be placed before the ERPC for guidance and advice as to the further course of action.

ERPC may guide.

Deliberation in the ERPC meeting

Beneficiary members felt that the instance case did not meet the force majeure criteria of suddenness and unexpectedness. It was also observed that as the PPA were bilateral in nature the force majeure clause of PPA is subject to acceptance by the beneficiaries individually and in a forum separate from ERPC. It was felt that NTPC needs to come out with the future plan for prevention of recurrence of such a situation. Members felt that the issue may be taken up by NTPC with the Ministry of Power for resolution in a separate meeting. Member (GO&D), CEA also endorsed the view that NTPC should take up the issue with MoP/CEA for an amicable solution. NTPC agreed.

NTPC assured that they would install the submersible pumps as a precautionary measure.

ITEM NO. B9:	Opening of LC by ER constituents for Deviation Charges Payments

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

Quote

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

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

Unquote

The details of LC amount required to be opened in 2016-17 by ER constituents is given in **Annexure – B26.** Letters to this effect has already been issued by ERLDC to the defaulting entities viz, JUVNL, GATI , Vedanta Ltd and Ind Barath. Rest of the constituents which were required to open/recoup the LC, they have opened/recoup the LC.

JUVNL, GATI, Vedanta and Ind Barath may update.

Deliberation in the TCC meeting

JUSNL representative informed that opening of LC is not their responsibility and either the JUVNL or the JBVNL may be approached. TCC referred the issue for decision to ERPC.

ERLDC informed that GMR is also to renew their LC. Vedanta had opened requisite LC. Ind Barath and Gati representatives were not present.

ERPC may guide.

Deliberation in the ERPC meeting

JUSNL confirmed that LC would be opened in another month's time. GMR informed that it is already under process and the same would be opened very shortly.

ITEM NO. B10:	Writ Petition on 220 kV Farakka-Lalmatia Transmission System [W.P.No. 17044 (W) of 2015 before Hon'ble High Court at Calcutta]

Both ERPC and ERPC Secretariat were the party/respondent in the **Writ Petition on 220 kV Farakka-Lalmatia Transmission System [W.P.No. 17044 (W) of 2015 before Hon'ble High Court at Calcutta]**. The matter was discussed in the 32nd TCC & ERPC Meeting. In TCC meeting it was decided that ERPC Secretariat would have to engage the services of a legal expert, as ERPC Secretariat does not have a legal cell, for representing before the Hon'ble High Court of Calcutta. 32nd ERPC also endorsed the decision of TCC and authorized MS, ERPC for engaging the services of a legal expert.

Accordingly, ERPC Secretariat engaged a legal firm namely M/s Custos Legis, 2A Ganesh Chandra Avenue, 3A Second Floor, Commerce House, Kolkata-13 for the purpose. Counter affidavit was filed. Necessary conference was made with the senior counsel. The case was heard in Hon'ble High Court of Calcutta on 11.04.2016, 02.05.2016 and 06.05.2016. Again it was also scheduled to be hard on 13.05.2016 but could not be hard on that date. Next date of hearing is yet to be communicated by the counsel.

During deliberation in the 32nd TCC & ERPC meeting the constituents were agreed to share the legal expenses on equal basis. Till date total expenditure on the said legal matter was Rs. 4,09,000/- (rupees four lakh nine thousand only). The amount has been paid to the legal firm from the existing "ERPC Establishment Fund".

Post facto approval may please be accorded for the said expenditure.

Deliberation in the TCC meeting

TCC approved incurrence of the legal expenses from ERPC establishment fund & approved the amount. TCC referred to ERPC for further concurrence.

ERPC may approve.

Deliberation in the ERPC meeting

ERPC approved.

ITEM NO. B11:	Outstanding issues with JUSNL/JUVNL.

1. Non participation in Commercial Sub Committee meetings

JUSNL representatives are not participating in the Commercial Sub Committee meetings of ERPC since 29th Commercial Sub Committee meetings held on 20.05.2015.

JUSNL may opine.

Deliberation in the TCC meeting

TCC advised JUSNL and all other members to send representatives in all ERPC Sub-Committee levels

ERPC may guide.

Deliberation in the ERPC meeting

JUSNL assured sending of their representatives in all Commercial Sub Committee Meetings positively.

2. Outstanding Payment of Deviation Charges

In the last Commercial Sub Committee meeting, it was informed by ERLDC that Deviation Charge payment outstanding of JUSNL/JUVNL as on 31.05.2016 is **Rs. 60.91 Cr** considering bill up to 15.05.2016. Moreover, an interest amount of **Rs. 166.28861 Lac** (as on 31.05.2016) is also payable by JUVNL due to delay payment of DSM charges. JUVNL has not paid the Deviation charges since 18.06.2015.

Even after several request and reminders from ERLDC, JUVNL /JUSNL has not paid the outstanding dues.

ERLDC has also given letter to JUVNL requesting to liquidate the entire Deviation charges along with delayed payment interest and open the LC for required amount failing which *Regulation 25A of the Open Access Regulations will be invoked and STOA will be denied.*

Quote:

25A. When so directed by the Commission, the National Load Despatch Centre or the Regional Load Despatch Centre, as the case may be, shall not grant short-term open access to the entities and associates of such entities, who consistently and willfully default in payment of Unscheduled Interchange charges, transmission charges, reactive energy charges, congestion charges and fee and charges for National Load Despatch Centre or Regional Load Despatch Centre including the charges for the Unified Load Despatch and Communication Scheme .

Unquote

25th ERPC/TCC had already directed ERLDC not to entertain any STOA transaction if any of the provisions of the CERC (Short Term Open Access and related matters) Regulations, 2008 is violated.

So in view of ERPC direction ERLDC may file pettion before CERC for invoking section 25A.

ELDC may update.

Deliberation in the TCC meeting

ERLDC informed that the principal outstanding against Jharkhand had grown to around Rs.65.93 Cr. JUSNL representative could not update or provide any road map for liquidation of dues.

In absence of any commitment from JUSNL, TCC advised ERLDC to implement the provisions of clause 25 A of Open Access Regulations on JUSNL with effect from 01.07.2016 in line with decision of 25th ERPC.

It was decided to place the agenda in ERPC tomorrow for further concurrence.

ERPC may guide.

Deliberation in the ERPC meeting

JUSNL informed that they are having problem in apportioning deviation charges to railway for their drawal through open access.

ERLDC opined that the railways were to be treated as embedded customer of Jharkhand and only deviation for Jharkhand as a whole would be taken care by ERLDC/ERPC. For their sub system/control area, responsibility shall be on SLDC/JUSNL of Jharkhand. It was further informed that these issues were already discussed threadbare during meeting for open access to railways in Jharkhand in which SLDC/JUSNL representative were also present and the same was agreed also.

JUSNL informed that they would release the outstanding deviation dues in a month's time and in turn will take up with railways at their end.

ERPC decided that in case JUSNL fail to liquidate their outstanding deviation charges by 31.07.2016 then ERLDC should apply clause 25A of the open access regulations with effect from 01.08.2016.

3. Non-release of payment towards service charges for maintenance of EMS/SCADA system

LTSA (Long term Service Agreement) contract for EMS/SCADA system installed at all control center has been awarded to M/s Alstom T&D Ltd. on 15th January 2010. Outstanding against EMS SCADA AMC as on 31.05.2016 is Rs. 14,59,432 for which due date was 03.02.2016.

In the last Commercial Sub Committee Meeting, JUSNL representative was not present. Therefore, it was decided to bring this to the notice of TCC member from Jharkhand.

JUSNL may place the roadmap.

Deliberation in the TCC meeting

JUSNL representative was not aware. Therefore it was decided to place the agenda in ERPC tomorrow.

ERPC may guide.

Deliberation in the ERPC meeting

JUSNL informed that the payment was already released. ERLDC confirmed.

ITEM NO. B12:	**Outstanding payment towards construction of bay at Biharsharif (PG) sub-station for 400kV Biharsharif-Tenughat line**

Powergrid vide letter dated 12.10.2016 informed that in 30th TCC advised to take up the issue for earliest liquidation of payables by JUSNL for outstanding payment towards construction of bay at POWERGRID Biharsharif sub-station for up-gradation of 220kV Biharsharif-Tenughat line to 400 KV level.

JUSNL was requested to take up the matter on priority and release the outstanding payment for early completion of balance work at POWERGRID Biharsharif sub-station.

In 121st OCC, Powergrid informed that JUSNL not yet released the payment.

JUSNL may update.

Deliberation in the TCC meeting

JUSNL representative was not updated. Therefore it was decided to place the agenda in ERPC tomorrow

ERPC may guide.

Deliberation in the ERPC meeting

JUSNL informed that release of the payment will be made by another month time.

ITEM NO. B13:	**Post facto approval of expenditure incurred for 5 day Protection training programme at ERPC, Kolkata**

MS informed that a total expenditure of Rs. 4, 05,154/- had been incurred from ERPC Fund for 5 day Protection training programme at ERPC, Kolkata and the same may be approved post facto by TCC and forwarded to ERPC for concurrence/approval. On ERPC approval, the money would be reimbursed to ERPC Fund from Reactive Pool Account.

Deliberation in the TCC meeting

TCC approved and recommended to ERPC for approval.

ERPC may approve.

Deliberation in the ERPC meeting

ERPC approved.

PART C: ERPC Matters

ITEM NO.C1: ERPC ESTABLISHMENT FUND FOR THE YEAR 2016-17

In the 32nd ERPC meeting held on 20th February 2016 ERPC had approved contribution of Rs. 15 lakh per member for the year 2016-17. The fund is utilised for reimbursement of ERPC Secretariat expenditures to Govt. of India and any other expenditures as per the approval of ERPC. Contributions have been received from some of the constituents. But, contributions from the following constituents are still due:

i. West Bengal State Electricity Distribution Company Limited (WBSEDCL)
ii. Odisha Power Transmission Corporation Limited (OPTCL)
iii. GRIDCO Limited
iv. OHPC Limited
v. Jharkhand Urja Vika Nigam Limited (JUVNL)
vi. Jharkhand Bizli Viataran Nigam Limited (JBVNL)
vii. Tenughat Vidyut Nigam Limited (TVNL)
viii. POWERGRID
ix. Adhunik Power & Natural Resources Limited (APNRL)
x. Vedanta Limited
xi. Gati Infrastructure Private Limited (Gati Infra)
xii. Jindal India Thermal Power Limited (JITPL)
xiii. Energy & Power Department, Sikkim (EPD Sikkim)

All the aforementioned constituents are requested to send their contributions to the ERPC Secretariat at an early date.

Deliberation in the ERPC meeting

Chairperson, ERPC, observed that many constituents are yet to pay their contributions and requested them to pay within 30th September 2016.

Members, who are yet to pay, agreed to release funds within 30th September 2016.

ITEM NO.C2: ERPC FUND FOR THE YEAR 2016-17

In the 32nd ERPC meeting held on 20th February 2016 ERPC had approved contribution of Rs. 1 lakh per member for the year 2016-17. The fund is utilised for holding various meeting, workshop, seminar etc. at the Secretariat. Contributions have been received from number of constituents. But, contributions from the following constituents are still due:

i. West Bengal State Electricity Distribution Company Limited (WBSEDCL)
ii. Odisha Power Transmission Corporation Limited (OPTCL)
iii. GRIDCO Limited
iv. OHPC Limited
v. Jharkhand Urja Vika Nigam Limited (JUVNL)
vi. Jharkhand Bizli Viataran Nigam Limited (JBVNL)
vii. Tenughat Vidyut Nigam Limited (TVNL)
viii. POWERGRID
ix. Adhunik Power & Natural Resources Limited (APNRL)
x. Vedanta Limited
xi. Gati Infrastructure Private Limited (Gati Infra)

All the aforementioned constituents are requested to send their contributions to the ERPC Secretariat at an early date.

Deliberation in the ERPC meeting

Chairperson, ERPC, observed that many constituents are yet to pay their contributions and requested them to pay within 30th September 2016.

Members, who are yet to pay, agreed to release funds within 30th September 2016.

ITEM NO.C3: ERPC-ESTABLISHMENT FUND FOR THE YEAR 2015-16 & 2014-15

Payments are due from the following constituents:

i) Gati Infrastructure Private Limited (Gati Infra) : Rs.15 lakh for year 2015-16
ii) Jharkhand Urja Vikas Nigam Limited (JUVNL): Rs. 30 lakh for the year 2014-15 & 2015-16
iii) Jharkhand Bizli Vitaran Nigam Limited (JBVNL): Rs. 30 lakh for the year 2014-15 & 2015-16

All the aforementioned constituents are requested to send their contributions to the ERPC Secretariat at an early date.

Deliberation in the ERPC meeting

Gati Infra representative was not present. JUVNL, JBVNL representative informed that the outstanding would be liquidated shortly.

ITEM NO.C4: ERPC FUND FOR THE YEAR 2015-16 & 2014-15

Payments are due from the following constituents:

i) Gati Infrastructure Private Limited (Gati Infra) : Rs.1 lakh for year 2015-16
ii) Jharkhand Urja Vikas Nigam Limited (JUVNL): Rs. 2 lakh for the year 2014-15 & 2015-16

iii) Jharkhand Bizli Vitaran Nigam Limited (JBVNL): Rs. 2 lakh for the year 2014-15 & 2015-16

All the aforementioned constituents are requested to send their contributions to the ERPC Secretariat at an early date.

Deliberation in the ERPC meeting

Gati Infra representative was not present. JUVNL, JBVNL representative informed that the outstanding would be liquidated shortly.

ITEM NO.C5: PAYMENT OF PARTICIATION FEE FOR UTILISING SERVICES ERPC - PROPOSAL

Ministry of Power, Government of India, under the provision of Electricity Act 2003 have constituted Eastern Regional Power Committee (ERPC) through its Resolution dated 25.05.2005 and subsequent amendment resolutions dated 29.11.2005 and 09.05.2008.The said resolutions also define the constituent members of ERPC.

Ministry of Power (MoP) had also decided that all activities of RPCs shall be fully financed by constituents of respective RPCs with effect from 01.04.2006. Accordingly till date, all activities of ERPC are being financed by its constituents except CEA, NLDC, and ERLDC in line with decision taken by ERPC.

Since as per MOP direction ERPC is a self-financing body, all the users of ERPC services should have a contributory responsibility towards the services rendered by ERPC unless specifically exempted by ERPC. Otherwise, this would raise a question of cross subsidy.

But in the recent past it is observed that besides specifically exempted constituents like CEA, NLDC & ERLDC many of the new players in the Grid are also functioning as non-contributory constituents of ERPC and taking services of ERPC free of cost.

Therefore, it is proposed that users intending to avail services from ERPC have to contribute to 'ERPC Establishment Fund' & 'ERPC Fund' at an equal yearly rate applicable to already contributory constituents. CEA, NLDC & ERLDC will continue as non-contributory constituents.

ERPC may discuss and approve. If approved, CBR of ERPC will be suitably amended.

Deliberation in the ERPC meeting

Members observed that ERPC was envisaged by Government of India to be self financing and felt that cross subsidy should be avoided and everyone utilizing the services of ERPC should share equally the financial requirement of ERPC.

ERPC therefore decided that irrespective of ERPC membership, all users intending to avail services from ERPC have to contribute to 'ERPC Establishment Fund' & 'ERPC Fund' at an equal yearly rate fixed by ERPC for constituents. CEA, NLDC & ERLDC would remain as non-contributory constituents.

ITEM NO.C6: MISCELLANEOUS EXPENDITURES INCURRED FROM ERPC ESTABLISHMENT FUND

C6.1: For R&M of ERPC Office Complex by CPWD

As per decision of ERPC renovation of ERPC office building and its residential complex was entrusted to CPWD. The latest status is placed below.

Sl. No.	Name of Work	Estimated amount & date of submission by CPWD (in Rs.)	Date of AA & ES by ERPC	Amount deposited to CPWD (in Rs.)	Present Status
1	R&M of ERPC main Office Building	7,39,61,000/- (11.02.2015)	20.03.2015	2,58,87,000/-	Work awarded on 23.11.15. Only civil work of some portion started & that too on very slow speed (only 2-3 labours are working)
2	R&M of ERPC Staff Quarter Building	3,15,99,000/- (20.07.2015)	28.09.2015	1,10,59,000/-	Work yet to be started.
3	R&M of Chowkidar Quarter & Garage	8,41,500/- (07.08.2015)	28.09.2015	No deposit made	Work started only few days back.
4	Placing of Fencing	7,29,830/- (29.10.2015)	02.12.2015	7,29,830/-	Work completed
5	Construction of underground water sump & overhead tank etc.	6,80,430/- (30.01.2016)	03.02.2016	No deposit made	Work not yet started
6	External Repair with painting & roof treatment of ERLDC technical building	16,25,736/- (12.12.2014)	18.02.2015	9,00,000/- + 7,25,736/-	Work in progress
7	External Repair by retrofitting & guniting method of ERLDC technical building & pump room	21,77,384/- (12.12.2014)	18.02.2015	16,40,000/- + 4,34,264/-	Work in progress

AA & ES: Administrative Approval and Estimate Sanction

This is for information of members.

Deliberation in the ERPC meeting

Chairperson, ERPC viewed that the progress of work is not at all satisfactory and therefore it needs to be taken up with CPWD headquarters, New Delhi. Secretariat was advised accordingly.

C6.2: The following miscellaneous expenditures from ERPC Establishment Fund need approval/post facto approval ERPC:

C6.2.1: Reimbursement of water charges to ERLDC (POSOCO)

Due to scarcity of water in ERPC and ERLDC office complex, ERLDC has been procuring water from external agency and cost is being shared on 50-50 basis between ERPC and ERLDC. Total cost borne by ERPC Secretariat so far is Rs.1,34,400/-(Rupees One Lakh Thirty Four Thousand Four Hundred Only). As a remedial measure ERPC Secretariat has got established two number KMC ferrule for water supply for which plumbing charges expenditure of Rs.1,29,500/-(Rupees One Lakh Twenty Nine Thousand Five Hundred Only) has been incurred. After establishment of reservoir and overhead tank work by CPWD the procurement of water from external agency will not be required.

The total expenditure so far of Rs.2,63,900/-(Rupees Two Lakh Sixty Three Thousand Nine Hundred Only) may be approved from ERPC Establishment Fund.

Deliberation in the ERPC meeting

ERPC approved.

C6.2.2: As per the decision taken in 26th ERPC Meeting held on 18.01.2014 in Kolkata, ERPC Secretariat has successfully implemented a Document Management System (DMS) for the benefit of all the constituent members of ERPC. Username & Passwords were already sent to majority of the participants who have requested for the same.

Implementation of DSM (Deviation Settlement Mechanism) and creation of Asset Management are in the final stage. Tentative date for commissioning of DSM is 18th July 2016 and DSM accounts will be issued by ERPC with the help of this new program.

As an extension of Document Management and in line with objectives under the Digital India Scheme of Govt of India, initiatives were taken for creating a mobile App of ERPC. It will facilitate to communicate relevant commercial, technical and operational information to its users in a more user friendly way. Initially, ERPC apps will run in synchronisation of ERPC web and its DMS. Moreover since the warranty period of DMS/Web is over an AMC is required to be done with OEM, M/s PwC. Also, website of ERPC is proposed to be redesigned & developed based on latest tech. If ERPC approves then M/s PwC may be entrusted to make the ERPC Apps (incl. one year support) operational with AMC/redesign & development of ERPC web site and DMS. A tentative allocation of Rs.35-40 lakh is required from ERPC Establishment Fund. On finalisation post facto approval will be taken in 34th ERPC meeting.

Members may approve the proposal.

Deliberation in the ERPC meeting

ERPC approved allocation of requisite amount from ERPC Establishment Fund and authorised Member Secretary, ERPC to entrust OEM M/s PWC for redesign of ERPC web site linking it with Apps & ERPC DMS based on latest technology along with AMC.

ITEM NO.C7: PROPOSAL FOR DISCONTINUATION OF DISTRIBUTION OF HARD COPY OF MINUTES OF MEETING

ERPC Secretariat has already undertaken 'Go Green' initiatives by uploading minutes of various sub-committee meetings (operation, protection, commercial etc.) on ERPC website www.erpc.gov.in and Document Management System (DMS). No hard copies of the minutes of the meeting are distributed. As a step forward, it proposed to upload the minutes of TCC and ERPC meetings also on ERPC website www.erpc.gov.in and DMS only and stop the existing practice of distribution of hard copies.

Members may approve the proposal.

Deliberation in the ERPC meeting

ERPC approved the proposal.

PART D: HOSTING OF THE NEXT ERPC MEETING & OTHER MATTERS

Item No.D1: Finalisation of dates and venue for the next ERPC & TCC meetings

The roster for hosting of ERPC meetings is given below (as per CBR approved by ERPC) :

Sl. No.	Host Organisation
1.	WEST BENGAL
2.	DVC
3.	NHPC
4.	POWERGRID
5.	SIKKIM
6.	PTC
7.	ODISHA
8.	JHARKHAND
9.	BIHAR
10.	NTPC – hosted 30th ERPC Mtg.
11.	**CESC**
12.	APNRL
13.	MPL
14.	VEDANTA LTD.
15.	GMRKEL

16.	NVVN
17.	TPTCL
18.	GATI INFRA
19.	JITPL

Now, it is the turn of CESC to host the next meeting. Members may decide about the dates and the venue for the next TCC & ERPC meetings.

Deliberation in the ERPC meeting

CESC agreed to host the meetings. It was decided that the next TCC and ERPC meetings would be held in November'16. Venue and dates would be decided by CESC in consultation with the ERPC Secretariat.

Shri Bijendra Prasad Yadav, Hon'ble Energy Minister, Govt. of Bihar, graced the occasion and addressed the delegates. The address of the Hon'ble Minister is appended at the beginning of the Minutes of Meeting.

The list of participants is at Annexure-I.

PART E: ITEMS FOR INFORMATION

ERPC noted the following items:

ITEM NO. E1 :	Status of Bus Splitting schemes in Eastern Region

A. Bus Splitting of Powergrid Sub-stations

In 118th OCC, Powergrid updated the status as follows:

- Maithon ---Completed
- Durgapur--Completed
- Biharshariff—Foundation work has been completed but shutdown are yet to be received to complete the work.

In 122nd OCC, Powergrid informed that shutdown has been placed from 13th -14th June, 2016. BSPTCL is to give real time concurrence.

BSPTCL, CTU may update.

Deliberation in the TCC meeting

PGCIL informed that shutdown for 400kV Biharshariff S/s was not approved by BSPTCL.

BSPTCL informed that shutdown will be given after availability of 220kV Tenughat-Biharshariff D/C line.

JUSNL informed that 220kV Tenughat-Biharshariff D/C line will be in service by 1st week of July 2016.

TCC advised BSPTCL to approve the shutdown as soon as the 220kV Tenughat-Biharshariff D/C line will be in service as the work is pending from long time.

PGCIL, BSPTCL to update the status in next OCC meeting.

ERLDC informed that the bus splitting schemes were planned in 2011-12 considering 400kV Durgapur-Jamshedpur and 400kV Durgapur-Maithon connectivity but these lines are getting delayed.

On query, PGCIL informed that the implemented bus splitting schemes could be made operational with immediate effect.

ERLDC requested CTU to carryout detailed study on bus splitting schemes to verify operational constraint with the present connectivity.

TCC advised CTU to carry out a final study post bus-splitting and inform ERLDC and ERPC.

B. Bus Splitting of Kahalgaon STPS Stage I&II, NTPC

In 121st & 122nd OCC, NTPC has given the present status as follows:

- 400/132kV Switchyard package - bid opened on 14.03.16. Awarded on 04.05.2016.
- Site levelling – Site package awarded, expected to be completed by June, 2016.
- Transformer package – Techno commercial under evolution. Price bid opened on 9th June, 2016.

NTPC may update.

Deliberation in the TCC meeting

NTPC updated the latest status as follows:

- *400/132kV Switchyard package - bid opened on 14.03.16. Awarded on 04.05.2016.*
- *Site levelling – Site levelling package awarded, expected to be completed by August, 2016.*
- *Transformer package and Shunt reactor– Will be awarded by July, 2016.*

ITEM NO. E2 :	Status of Bandel Islanding Scheme-Agenda submitted by WBPDCL

In 31st ERPC meeting Bandel Islanding Scheme was approved for implementation. WBPDCL informed that Bandel Islanding scheme has been taken up by them and would be implemented in right earnest. WBPDCL proposed for PSDF funding for implementation of Bandel Islanding Scheme.

In 32nd TCC, it was informed that PSDF funding for such type of schemes may not be applicable. TCC felt that since other islanding schemes were funded from own source the same could be applied in this case also. TCC advised WBPDCL to fund the scheme from own source. WBPDCL agreed.

Subsequently, in the PSDF review meeting held on 29.04.16 in Delhi with Joint Secretary (OM), MOP, GOI in Chair, ERPC placed a proposal for funding the Bandel Islanding scheme from PSDF. The review committee informed that such type of islanding scheme is now being funded by PSDF and therefore Bandel Islanding Scheme also can be included.

Accordingly, WBPDCL was requested to place the detail proposal for PSDF funding to nodal agency NLDC with a copy to ERPC at the earliest so that the road map is strictly adhered to.

In 122nd OCC, It was informed that DPR for PSDF funding is under preparation.

WBPDCL also informed that tendering is in progress.

WBPDCL may update the latest status.

Deliberation in the TCC meeting

WBPDCL informed that DPR has been submitted to NLDC on 22-06-2016 for funding from PSDF.

ERPC may note.

ITEM NO. E3 :	FSTPS Islanding Scheme, NTPC

In 118th OCC, NTPC informed that their part is ready for implementation.

Powergrid informed that the battery charger has been delivered and expected to complete the work by March, 2016.

In 119th OCC, Powergrid informed that the battery charger has been delivered to site and for commissioning with deputation of service engineer JUSNL has to ensure the supply of materials which are in the scope of JUSNL.

OCC advised JUSNL to coordinate with Powergrid and arrange the required materials/works which are in the scope of JUSNL. JUSNL agreed.

In 120th OCC, JUSNL informed that the required materials/works have been arranged, Powergrid may start the commissioning work.

In 121st OCC meeting, Powergrid informed that official confirmation for the readiness of site/material availability by JUSNL is still awaited.

OCC advised JUSNL to give official correspondence regarding their readiness and co-ordinate for early commissioning of the Islanding scheme.

In 122nd OCC, NTPC informed that cable laying completed and interfacing is pending.

JUSNL informed that the required materials/works will be completed within 20 days and Powergrid will be contacted accordingly.

NTPC, JUSNL and Powergrid may update.

Deliberation in the TCC meeting

JUSNL informed that the required materials/works will be completed by 1st July 2016 and PGCIL will be informed accordingly.

TCC advised JUSNL to send an official letter to PGCIL confirming their readiness with a copy to ERPC.

PGCIL informed that they would mobilize the vendor within 10 days after receiving the official communication from JUSNL.

ERPC may note.

ITEM NO. E4 :	Status of 132kV Rihand-Sonenagar D/C Line

JUSNL vide letter dated 01.06.2016 intimated that the old 132kV Rihand-Sonenagar D/C T/L has been configured after creation of Jharkhand under mutual understanding of both the state of Bihar and Jharkhand in the following manner:

1. 132kV Rihand-Sonenagar Ckt-I is feeding power directly to Sonenagar but being maintained by JUSNL.
2. 132kV Rihand-Sonenagar Ckt-II has been made LILO at Garhwa and Japla and presently the T/L is in three segments i.e. 132kV Rihand-Garhwa S/C, 132kV Garhwa –Japla S/C and 132kV Japla-Sonnenagar S/C.

132kV Rihand-Sonenagar Ckt-I remains virtually idle charged for most of the time but maintenance is done by JUSNL because of being on the same tower. Palamu region of Jharkhand is solely dependent on Rihand and Sonenagar for getting power for Railway Traction & Distribution power for consumers. Right now Sonenagar (BSPTCL) has restricted power on account of mishappening of collapse of 9 towers.

Therefore, JUSNL through SLDC has placed the following proposal for sake of welfare of the state and in larger interest of uninterrupted, reliable power for railway traction (20-25MW).

1. The old double ckt of 132kV Rihand-Sonenagar T/L will be taken over by JUSNL because it is passing through the geographical area of Jharkhand (90% of the stretch of length) and is being maintained by JUSNL.
2. The 132kV Rihand-Sonenagar Ckt (Ckt-I) shall be LILO like Ckt-II at Garhwa & Japla and middle segment of the said T/L shall be connected to Garhwa and Japla. This will facilitate reliability of circuit and help in carrying out regular maintenance work.
3. Whenever BSPTCL will need emergency power, same may be extended from Japla to Sonenagar on as and when required basis.
4. In near future Garhwa G/S/S is going to be connected to 132kV G/S/S Daltonganj and adequate power from Ranchi may be extended in the Palamu region. At that time we will be in a position to extend power from Japla to Sonenagar on as and when required basis as presently is being fulfilled through 132 kV Rihand –Sonenagar Ckt-I.

In 122nd OCC, Member Secretary, ERPC informed that the issue has been discussed in 4th SSCM meeting and, BSPTCL agreed to communicate their views.

On receipt of comments from BSPTCL, the issue needs deliberation before TCC.

BSPTCL may update. Members may discuss.

Deliberation in the TCC meeting

BSPTCL informed that they are using 132kV Rihand-Sonenagar Ckt-I for feeding Railway supply during emergencies. The reliability of railway supply will be affected, if the line LILO at 132kV Garhwa & Japla.

TCC advised BSPTCL and JUSNL to resolve the issue bilaterally and place in next OCC if required.

ERPC may note.

ITEM NO. E5 :	Disturbance in Odisha System

1. Total power failure at 400/220kV Mendhasal S/s of OPTCL System on 06-05-16 at 14:13 hrs.

At 14:13 hrs, 400 kV Mendasal – New Duburi tripped from both end on zone 1 distance protection due to B-G fault.
Distance protection of 400 kV Mendasal - Baripada at Mendasal end also sensed the fault & line tripped from Mendasal end only.

At same time, contact of the backup relay (SIEMENS, 7SJ62) of ICT provided for overload alarm got activated which led to operation of LBB.

220 kV Bhanjanagar – Mendasal S/c line also tripped from Bhanjanagar end on distance protection.

Relay indications are as follows:

Time	Name	Local end	Remote end
14:13 hrs	400/220kV , 315 MVA ICT-I & II at Mendhasal	On 400 kV side – Y Ph, B Ph, E/F, LBB On 220 kV side – E/F	
	400 kV Mendasal - New Duburi	At Mendasal D/P, Z-I, Dist – 94.5 km. 4.2 kA	At New Duburi B-N Z-I, F/C 3.467 kA
	400 kV Mendasal - Baripada	At Mendasal D/P, B-N, Dist – (-149.8 km) and distance protection	At Baripada Did not trip
	220 kV Bhanjanagar – Mendasal	At Mendhasal Did not trip	At Bhanjanagar D/P dist = 246.53 km, IA=892A, IB=946A, IC=943A

Analysis of PMU plots:

- From the Talcher PMU plot, approx. 12kV voltage dip has been observed in B phase at 14:13:00 hrs.
- Fault clearance time was approx. 680 ms.

In 44th PCC, OPTCL explained that

- There was a B-N fault in 400 kV Mendasal - New Duburi line and New Duburi end tripped on Zone 1 B-Phase Earth fault. Fault current was 3.46 kA.
- However, Mendasal end distance protection identified as power swing and issued trip command to CB after 600 ms. OPTCL has placed the DR record of the relay.
- Because of delayed fault clearance from Mendasal end, over load alarm at 90% of full load for both 315 MVA, 400/220kV ICTs activated and initiated LBB protection.
- LBB protection tripped both ICTs and 400 kV Mendasal – Baripada line which were connected to bus-II.
- Regarding LBB operation, OPTCL explained that after the incidence of 12.04.16, they have implemented a over load alarm for both 315 MVA, 400/220kV ICTs at 90% of the full load. But the logic was inadvertently initiating LBB protection for both the ICTs.
- OPTCL confirmed that the logic has been removed on 6th May 2016 and they will install separate relay for over load alarm within a month.
- 220 kV Bhanjanagar – Mendasal line tripped from Bhanjanagar end on distance protection due to over load.

Powergrid informed that 400 kV Mendasal - Baripada line tripped from Baripada end on zone 2 distance protection.

PCC advised OPTCL to check the distance relay of 400 kV Mendasal - New Duburi line at Mendasal end and 220 kV Bhanjanagar – Mendasal line at Bhanjanagar end.

OPTCL may update.

Deliberation in the TCC meeting

It was informed that OPTCL has submitted a report.

TCC advised OPTCL and PGCIL to check the distance relay of 400 kV Mendasal - New Duburi line at Mendasal end as it identified B-N fault as power swing and issued trip command to CB after 600 ms.

ERPC may note.

2. Disturbance at 400/220kV Mendhasal S/s of OPTCL System on 23-05-16 at 17:20 hrs.

At 17:20 hrs, 400kV Meeramandali- Mendhasal S/c tripped from both end on indication of DP, R-Ph, E/F, Zn-I at Mendhasal end due to tower damage at Loc. No 180, 181 & 182 (near

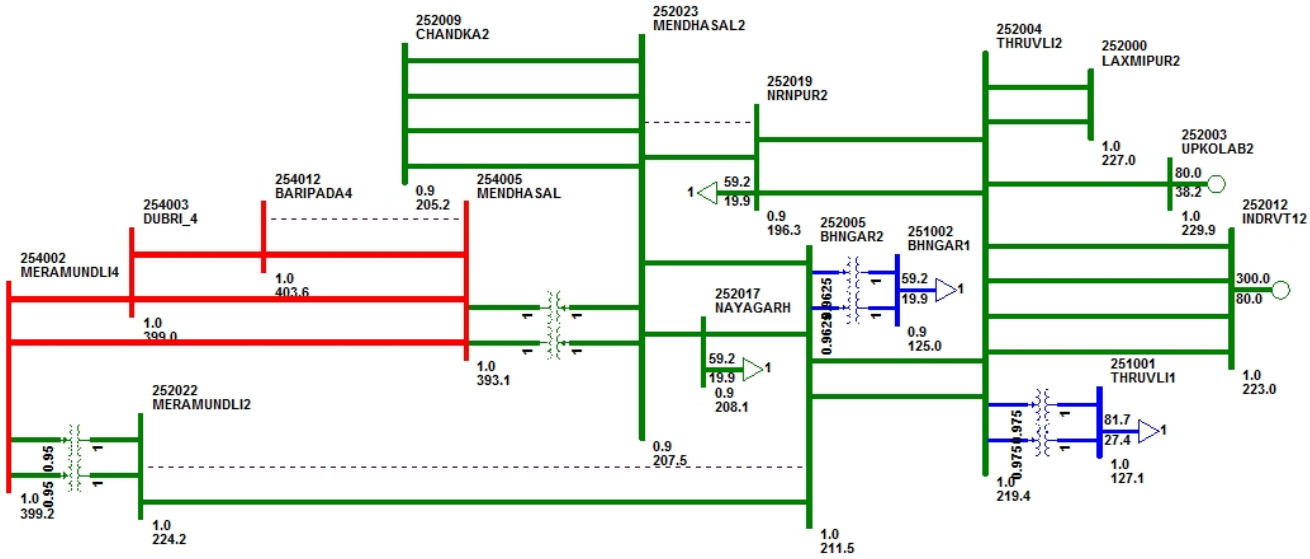
to Mendhasal end i.e 45 KM) because of strong wind.

400kV Meeramandali-New Duburi D/c were out of service due to tower collapse.

At 17:28 hrs, 400kV Mendhasal- Baripada S/c line tripped from Mendhasal end on zone 1 distance protection, B-Ph, Zone I and carrier send to Baripada end.

At 17:28 hrs, 400kV Mendhasal- New Duburi S/c line tripped on overvoltage from Mendhasal end.

After tripping of above mentioned lines MW flow on both 315 MVA ICTs at Mendhasal & New Duburi became zero.



Relay indications are as follows:

Time	Name	Local end	Remote end
17:20 hrs	400kV Mendhasal-Meeramandali S/c	At Mendhasal DP, R-Ph, E/F, Z-I, F.D- 45 KM (tower Collapsed)	At Meeramandali Tripped
17:28 hrs	400kV Mendhasal-Baripada S/c	At Mendhasal DP, B-Ph, Z-I, F.D- 23.8 KM, Carrier send	At Baripada Tripped
17:51 hrs	400kV Mendhasal-N.Duburi S/c	At Mendhasal O/V	At N.Duburi Did Not Trip

Analysis of PMU plots:

- From the Rengali PMU plot, approx. 15 kV voltage dip has been observed in R-Ph phase at 17:20:18 hrs.
- At 17:29:05 hrs, 4 kV voltage dip has been observed in B-Ph.
- Fault clearance time in both the incident was approx. 80 ms.

In 44th PCC, OPTCL explained that

- At 17:20 hrs, there was a R-N fault in 400 kV Mendasal - Meramundali line and Mendasal end tripped on Zone 1 R-Phase Earth fault.
- Meramundali end tripped on zone 1, R-N fault and fault distance was 76 km from Meramundali end.
- At 17:28 hrs, there was another R-N fault in 400kV Mendhasal- Baripada S/c and Mendasal end tripped on Zone 1 and carrier inter trip has been sent to Baripada end.
- However, carrier inter trip was not received at Baripada and Baripada end tripped on zone 2, R-N fault, the fault distance was 35.5 km.
- Thereafter over voltage observed at 400 kV Mendasal S/s because of load thrown off and 400kV Mendhasal- N.Duburi S/c line tripped from Mendhasal end on Stage-1 over voltage.

PCC advised OPTCL and Powergrid (Odisa) to check the PLCC of 400kV Mendhasal-Baripada S/c line.

OPTCL may update.

Deliberation in the TCC meeting

Powergrid (Odisha) informed that BPL make PLCC system is not performing well for long transmission lines and they will shift these panels to other shorter lines. They will implement digital PLCC system in 400kV Mendhasal- Baripada S/c line to improve the reliability. However, they are not getting shutdown for this work from OPTCL.

PGCIL informed that they are also not getting shutdown for intra-state lines for which they have to implement digital PLCC system.

TCC advised OPTCL and PGCIL to resolve the issues bilaterally after the meeting and place the outcome in ERPC meeting tomorrow.

PGCIL and OPTCL may update.

OPTCL and Powergrid (Odisha) pointed out that because of some mutual co-ordination problem many issues related to O&M of line, bays and equipments available in OPTCL, OHPC and Powergrid sub-stations are not getting properly addressed.

In order to resolve these pending issues PCC advised Member Secretary to have joint interaction with OPTCL/GRIDCO and Powergrid (Odisha) at Bhubaneswar on 17.6.16 during the course of workshop on "Emerging Issues in Power Sector" jointly organized by ERPC, ERLDC and Gridco at Bhubaneswar on 17-18/6/2016.

OPTCL & PGCIL may update.

Deliberation in the TCC meeting

It was informed by MS, ERPC that joint meeting with OPTCL, OHPC, GRIDCO and Powergrid (Odisha) was held at Bhubaneswar on 17.6.16 during the course of workshop on "Emerging Issues in Power Sector".

Minutes of the meeting already circulated.

TCC advised OPTCL, OHPC, GRIDCO and Powergrid (Odisha) to effectively follow the decision taken in the meeting.

Odisha and PGCIL agreed to the same.

ERPC may note.

3. Multiple elements tripping in OPTCL system on 25-05-16 at 15:20 hrs.

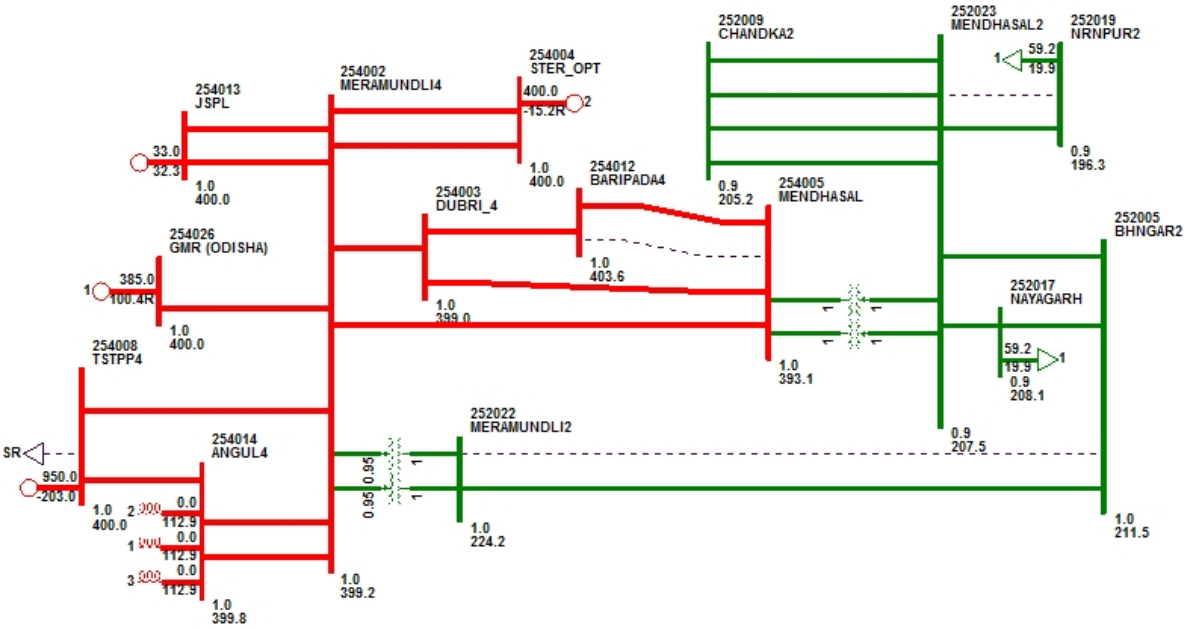
At 15:20 hrs, the following lines were tripped due to inclement weather condition:

- 400kV Mendhasal- Baripada S/c tripped from Baripada end on indication B-Ph, E/F, Z-I & R-Y-B –Ph
- 400kV New Duburi- Mendhasal S/c tripped from New Duburi end on Z-III distance protection.
- 220kV Mendhasal-Nayagarh S/c tripped from Nayagarh end on operation of Y-Ph O/C relay.

At 15:43 hrs, 400kV New Duburi- Baripada S/c line was tripped from Baripada end only on distance protection.

Relay indications are as follows:

Time	Name	Local end	Remote end
15:20	400kV Mendhasal-Baripada S/c	At Mendhasal Did Not Trip	At Baripada B-Ph , E/F, Z-I
	400kV Mendhasal-N.Duburi S/c	At Mendhasal	At N.Duburi DP, R-Ph, Y-Ph, B-Ph, F.D-152.5kM , Zn-III
	220kV Nayagarh-Mendhasal	At Nayagarh Y-Ph , O/C	At Mendhasal Did Not Trip
15:43	400kV N.Duburi-Baripada S/c	Tripped from Baripada end only on DP	



Analysis of PMU plots:

- From the Rourkela PMU plot, approx. 6 kV voltage dip has been observed in B-Ph phase at 15:20:20 hrs. And after 1 sec i.e 15:20:21 hrs further 6kV voltage dip has been observed in B-Ph.
- Fault clearance time in both the incident was approx. 80 ms.

In 44th PCC, OPTCL explained that there was a transient B-N fault in 400kV Mendhasal-Baripada S/c line and Mendasal end tripped on zone 1 protection and successfully auto reclosed.

However, Baripada end tripped on zone 1, B-N fault and auto recloser attempted but failed due to permanent fault as intimated by Powergrid (Odisha).

OPTCL informed that 220kV Nayagarh-Mendhasal line tripped from Nayagarh end on over current protection due to over load.

400kV New Duburi- Baripada S/c line tripped from Baripada end as direct trip received from New Duburi end due to spurious signal initiated from New Duburi end.

OPTCL failed to explain the tripping of 400kV Mendhasal-New Duburi S/c line from New Duburi end on zone 3 distance protection and informed that disturbance record is yet to be collected.

PCC felt that without complete information i.e. DR of N. Duburi and detail analysis from OPTCL the tripping incidence could not be analyzed. Therefore, PCC advised OPTCL to place the detail analysis of the event in 33rd TCC Meeting.

OPTCL may place.

Deliberation in the TCC meeting

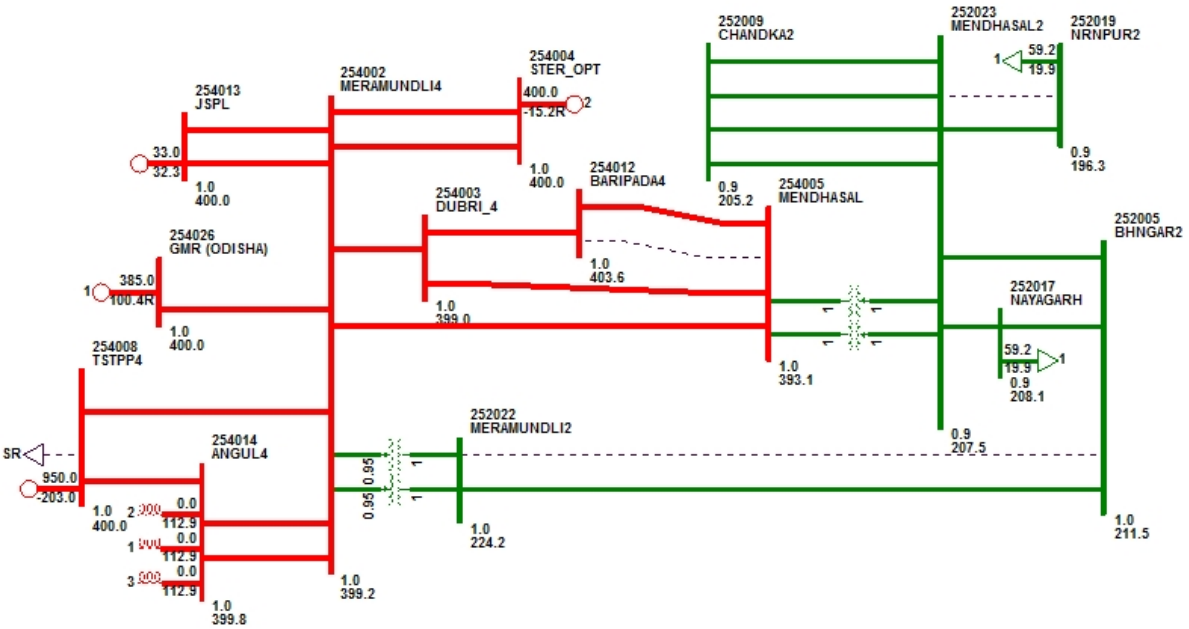
OPTCL informed that DR has been collected.

OPTCL informed that 400kV Mendhasal-New Duburi S/c line will be LILO at Pandiabil and the protection settings will be reviewed accordingly.

TCC advised OPTCL to explain the tripping incidence in PCC meeting.

4. Disturbance in OPTCL System on 10-05-16 at 15:39-16:44 hrs.

On 10.05.16, at 15:39 hrs to 16:44 hrs, multiple elements tripped in PGCIL, Orissa, GMR & JITPL substation due to inclement weather condition in Orissa. The following sequence of incidents were observed:



At 15:39 hrs:
400kV Talcher- Angul S/c tripped from both ends on SLG (i.e B-N) fault.

Simultaneously, 220kV Meeramandali- Bhanjanagar-II & 220kV Meeramandali- TTPS-II tripped from Meeramandali end on indication of B-N fault.

400/220kV 315 MVA ICT-I at Meeramandali was also tripped from LV (i.e.220kV side) due to actuation of overcurrent protection.

At 15:43 hrs:
400kV lines emanating from Meeramandali S/s such as Meeramandali- Angul D/C & Meeramandali- Sterlite -I tripped from both end due to occurrence of SLG (i.e B-N) fault. However, Meeramandali- Sterlite Ckt-II tripped from Sterlite end only.

400kV Meeramandali- Angul Ckt-I & II were successfully normalized at 16:03 hrs & 16:18 hrs respectively.

At 15:54 hrs:
400kV Meeramandali- N.Duburi- Ckt-I & II tripped from Meeramandali end on indication of Y-N & B-N fault respectively.

At 16:05 hrs:
400kV GMR- Angul-II tripped due to transient SLG (i.e R-N) fault and autorecloser operation was successful at both ends.

However, R-Ph current of 400kV GMR- Angul-II was very high (10kAmp), while R-Ph voltage reduced to 101kV (Phase to neutral) and zero sequence current raised to 12 KA. Hence GT#2 tripped (as zero sequence current reaches more that the setting value).
Subsequently arc was observed in line isolator contact of the 400kV GMR- Angul-II line. GMR manually opened the 400kV GMR- Angul-Ckt-II as a preventive measure while breaker at Angul end tripped after receiving the DT from GMR end.

At 16:44 hrs:

400kV Meeramandali- N.Duburi D/C tower collapsed at loc. No- 8/0 ,8/1 & 8/2 due to tornado.

Charging attempt of 400kV Meeramandali- N.Duburi Ckt-I was taken at Meeramandali end but line tripped on indication of DP and simultaneously LBB protection had initiated at Meeramandali S/s.

All the elements connected to 400kV main bus- I at Meeramandali tripped from local end. GMR running U#3 connected to Odisha system had also tripped.

Heavy voltage dip was observed at 400kV GMR & JITPL bus and caused tripping of GT of JITPL U#1 & GMR U #1 due to unit auxiliaries tripping.

Relay indications are as follows:

S.No	Elements Tripping	Local End	Remote End
15:39 hrs	400kV Talcher- Angul S/c	At Talcher B Phase E/F ,DP	At Angul Z-1, F.D-15.41 KM,F.C-16.6 KA
	220kV Meeramandali-Bhanjanagar-I	At Meeramandali B-Ph to E/F, F.D- 4.774 KM	At Bhanjanagar Did Not Tripped
	220kV TTPS-Meeramandali- II	At Meeramandali B-Ph to E/F, F.D- 8.50 KM	At TTPS NA
	315 MVA ICT-I at Meeramandali	Tripped from 220kV side on O/C	

15:43 hrs	400kV Meeramandali-Angul-I	At Meeramandali B-N fault, F.D- 59.4 KM	At Angul NA
	400kV Meeramandali-Angul-II	At Meeramandali B-N fault, F.D- 6.0 KM	At Angul NA
	400kV Meeramandali-SEL-I	At Meeramandali B-N fault, F.D- 2.0 KM	At SEL NA
	400kV Meeramandali-SEL-II	At Meeramandali Did Not Tripped	At SEL Tripped
15:54 hrs	400kV Meeramandali-N.Duburi-I	At Meeramandali Y-Ph to E/F, F.D- 12.5 KM	At N.Duburi NA
	400kV Meeramandali-N.Duburi-II	At Meeramandali B-N fault, F.D- 59.2 KM	At N.Duburi NA
16:05 hrs	400kV GMR –Angul-II	At GMR R-N fault, AR successful (manually opened)	At Angul R-N fault, AR successful (tripped due to DT received)
	GMR U #2	Tripped due to auxiliary tripped	
16:44 hrs	400kV Meeramandali-N.Duburi-I	At Meeramandali DP. F.D- 3.9 KM	At N.Duburi NA
	400kV SEL-II	Tripped on LBB	
	400kV Mendhasal-Meeramandali S/c		
	400kV Angul Ckt-Meeramandali -II		
	400kV JSPL-Meeramandali Ckt-I		
	315 MVA ICT-I		
	400kV GMR-Meeramandali Ckt-I		
	GMR U#3		
	GMR U#1	Tripped due to Failure of auxiliary	
	JITPL U #1	Tripped due to Failure of auxiliary	

Analysis of PMU plots:

At 15:39 hrs

- From the Rengali PMU plot, approx. 55kV voltage dip has been observed in B-Ph at 15:39:44 hrs.
- Fault clearance time was approx. 80 ms.

At 15:43 hrs

- From the Rengali PMU plot, approx. 55kV voltage dip has been observed in B-Ph at 15:43 hrs. And after 1000 ms successful Autorecloser operation was observed but within 25 ms (i.e Reclaim time) further dip was observed in B-Ph.

- Fault clearance time was approx. 80 ms.

At 16:05 hrs

- From the Rengali PMU plot, approx. 20kV voltage dip has been observed in R-Ph at 16:05:23 hrs.
- Fault clearance time was approx. 80 ms.

At 16:44 hrs

- From the Rengali PMU plot, approx. 140 kV voltage dip has been observed in R,Y & B-Ph at 16:44:13 hrs.
- Fault clearance time was approx.280 ms.

In 44th PCC, Powergrid and OPTCL explained that

At 15:39 hrs

Powergrid (Odisha) explained that there was a B-N fault in 400kV Talcher- Angul S/c line and the fault got cleared from Talcher and Angul end on zone 1 distance protection after unsuccessful auto reclose operation.

OPTCL explained that there was another B-N fault in 220kV TTPS- Meeramandali line - II due to jumper snapping and Meramundali end tripped on Earth fault protection. However, both 220kV TTPS- Meeramandali line - I & II tripped from TTPS end on E/F protection.

OPTCL explained that the tripping of 220kV Meeramandali- Bhanjanagar-I from Meramundali end and tripping of 315 MVA ICT-I at Meeramandali was due to overload on overcurrent protection.

At 15:43 hrs

Powergrid (Odisha) explained that there was B-N fault in 400kV Meeramandali- Angul-II and Angul end tripped on zone 1, B-N fault.

OPTCL informed that 400kV Meeramandali- Angul-I & II tripped from Meramundali end on Zone 1, B-N fault.

OPTCL explained that there was another fault in 400kV Meeramundali-Sterlite line I and Meramundali end tripped on zone 1, B-N fault. However, 400kV Meeramundali-Sterlite line I & II tripped from Sterlite end as both lines were charged through one main & tie CB due to incomplete dia.

PCC could not conclude the tripping incidences due to non-availability of detail report and therefore, advised OPTCL to place the detail analysis in 33rd TCC Meeting.

OPTCL may place.

Deliberation in the TCC meeting

It was informed that OPTCL has submitted the relevant details to ERPC Secretariat.

ERLDC informed that heavy voltage dip was observed at 16:05 hrs at 400kV GMR & JITPL bus and caused tripping of GT of JITPL U#1 & GMR U #1 due to unit auxiliaries tripping. This may be due to delayed/non-clearance of fault in the system.

TCC advised OPTCL, NTPC, GMR and JITPL to explain the disturbance in next PCC meeting.

Regarding charging of 400kV Meramundali-Vedanta line I&II through one main & tie CB from Vedanta end due to incomplete dia, TCC felt that this is violation of CEA regulations.

Vedanta informed that bay extension work is in progress and dia would complete by November, 2016. TCC advised the Secretariat to review the progress in monthly OCC meetings.

CEA advised Vedanta to submit the SLD of the switchyard.

ITEM NO. E6 :	**Repeated disturbances in OPTCL System at Mendhasal and Meramundali area**

For the last few months, system disturbances in the EHV network of OPTCL are occurring frequently. These disturbances are mostly related to protection system mis-operation at Meramundali and Mendhasal S/Stns. Some of the instances of disturbance are :

1. Total power failure at 400/220kV Mendhasal S/s of OPTCL System on 12-04-16 at 14:04 hrs.
2. Disturbance at 400/220kV Mendhasal S/s of OPTCL System on 16-04-16 at 09:55 hrs.
3. Total power failure at 400/220kV Mendhasal S/s of OPTCL System on 26-04-16 at 14:48 hrs.
4. Multiple elements tripping at 400kV Meeramandali of OPTCL system on 30-04-16 at 22:02hrs.
5. Total power failure at 400/220kV Mendhasal S/s of OPTCL System on 06-05-16 at 14:13 hrs.
6. Multiple elements tripping at 400/220kV Meeramandali S/s of OPTCL System on 10-05-16 at 15:39-16:44 hrs
7. Total power failure at 400/220kV Mendhasal S/s of OPTCL System on 23-05-16 at 17:20 hrs.
8. Multiple elements tripping in 400/220kV Meeramandali&Mendhasal S/s of OPTCL System on 25-05-16 at 15:20 hrs.

In the past, CERC vide its order on 59/MP/2014 had directed OPTCL to engage an independent third party, preferably CPRI, to undertake afresh a complete audit of OPTCL transmission system as per checklist specified by report of Task Force on Power System Analysis under Contingency OPTCL was further advised to ensure that all the findings of

protection audit by CPRI are addressed and rectifications are completed as expeditiously as possible.
As per the Commission‟s direction, OPTCL had engaged CPRI to undertake complete audit of OPTCL transmission system.

Considering audit observations made by CPRI OPTCL is to devise a suitable inter-tripping schemes to avoid occurrence of wide-spread disturbances in the event of loss of heavily loaded transmission elements without redundancy, as an interim measure and to furnish a time-bound plan for rectification of its protection system shortcomings and

OPTCL may update. TCC may guide.

Deliberation in the TCC meeting

It was informed that OPTCL has submitted the report to ERPC Secretariat.

ERLDC informed that around 40% of the tripping incidences in ER are in Odisha network during last 6 months specifically in around 400kV Mendhasal and Meramundali.

TCC advised OPTCL to take appropriate actions to reduce the disturbances in Odisha system.

ERPC may note.

ITEM NO. E7 :	Protection Committee visit to BSPTCL and JUSNL Sub-stations

In view of repeated uncoordinated trippings in BSPTCL and JUSNL systems, 31st TCC/ERPC formed a committee of following protection engineers to review the situation:

- Shri Sabyasachi Roy, ACE, WBSETCL,
- Shri L Nayak, GM, OPTCL
- Shri Jayanta Datta, SE, DVC
- Shri Surajit Bannerjee Asst GM, ERLDC,
- Shri Jiten Das, Asst GM, PGCIL
- Shri S. B. Prasad, ESE, BSPTCL
- Shri Vidyasagar Singh, ESE, JUSNL

PCC decided that the protection committee members will carry out the site visit of JUSNL substations during 11th to 14th May, 2016 to review the protection system in respect of Chandil, Ramchandrapur, Adityapur and adjoining substations.

In 43rd PCC, it was informed that the Protection team has visited 220/132 kV Chandil S/s, Ramchandrapur & 132/33 kV Adityapur of JUSNL from 11th to 12th May, 2016.

A special meeting was held on 08.06.16 to discuss the observations of the site visit of Chandil, Ramchandrapur, Adityapur & adjoining substations by ERPC team. In the meeting it was emphasized that the distance protection along with the back-up protection of JUSNL system (comprising of 220kV Ramchandrapur, Chandil & Hatia-II and 132 kV Adityapur &

Hatia-I) needs to be reviewed for proper protection co-ordination. It was decided that the Protection team will carry out the setting calculations for all the 220 kV & 132 kV lines along with the 220/132 kV ICTs based on the data provided by JUSNL which shall be implemented by JUSNL.

ERPC protection team may place the report

Deliberation in the TCC meeting

Shri Jayanta Dutta, SE, DVC and member of ERPC protection team delivered a brief presentation on outcome of the on-site visit of 220/132 kV Chandil S/s, Ramchandrapur & 132/33 kV Adityapur substations of JUSNL.

It was informed that the final report will be issued by ERPC Secretariat incorporating the relay setting data tentatively by first week of July-16.

TCC advised JUSNL to comply the recommendations given by the ERPC protection team.

JUSNL and Sikkim informed that they need funds for upgradation of protection system. TCC, therefore advised JUSNL and Sikkim to prepare DPR within a month for up gradation of protection system and send to NLDC for PSDF funding with intimation to ERPC Secretariat.

ITEM NO. E8 :	**Modification of PDO conditions for HVDC Gajuwaka**

It has been observed that tripping of any line section in 400kV Rengali-Indravati-Jeypore path or 400kV Angul-Bolangir-Jeypore path generally causes voltage oscillations around Jeypore and ultimately leads to a disturbance in S. Odisha system. This leads to difficulty in exporting power to SR through HVDC Gajuwaka in a reliable manner, besides affecting the security of S. Odisha system. Such disturbances particularly occur in low hydro season, due to low fault level around Jeypore during that period. The disturbance which occurred on 10-03-16 from 12:24 hrs to 12:31 hrs is one such example.

It was therefore felt that the existing PDO to reduce power flow through HVDC Gajuwaka, needed a review. Accordingly, modification of PDO conditions for HVDC Gajuwaka was discussed in 31st protection sub-committee meeting held at ERPC,Kolkata on 28.05.2015 (Thursday), and also in 109th OCC Meeting held on 29th May, 2015 at ERPC, Kolkata.

It was decided that a separate meeting with OPTCL, HVDC Powergrid, NLDC, SRLDC, SRPC, ERLDC and ERPC will be convened tentatively in last week of June, 2015 for detail discussion.

However, further progress could not be achieved in this direction.

TCC may therefore kindly advise all concerned entities to review the existing PDO conditions of HVDC Gajuwaka and implement the same at the earliest.

TCC may guide.

Deliberation in the TCC meeting

ERLDC informed that existing PDO to reduce power flow through HVDC Gazuwaka was 10 years old and it needs to be reviewed as per the present network conditions.

After detailed discussion, TCC decided that the issue should be discussed in a separate meeting with OPTCL, HVDC Powergrid, NLDC, SRLDC, SRPC, ERLDC and ERPC.

ITEM NO. E9 :	**Update status on SCADA telemetry**

CERC order (7/SM/2014) dated 29.01.2016 regarding the telemetry CERC at sl. no. 18 of their order have mentioned that

"*NLDC and respective RLDC are directed to up-date the status of telemetry every month at their web-site and persistent non-availability of data from the generating stations/sub-stations be taken up in RPC meetings for appropriate direction and action*".

Accordingly, ERLDC is preparing the monthly telemetry status in the prescribed CERC format every month and it is being uploaded it in ERLDC website;http://erldc.org/telemetry.aspx

In 121st OCC, ERLDC presented the updated telemetry status and informed that every month they were posting the updated status at ERLDC website.

The updated status is enclosed at **Annexure-B15.**

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

TCC may advice.

Deliberation in the TCC meeting

ERLDC informed that data from Vedanta was not available since last 4-5 months and only recently they have restored the data.

TCC advised all the constituents to go through the ERLDC website on regular basis and take appropriate action to make the data available to ERLDC.

ITEM NO. E10 :	**Maintenance of RTU supplied under ULDC project at ISGS station**

It may be mention that POWERGRID has supplied RTU under ULDC project at NHPC: Teesta, Rangit and NTPC Kahalgaon, Talcher Super Thermal, Farakka and NTPC Lamatia stations.

During meeting with POWERGRID on 09th May 2016 they have informed that they are not going to do maintenance of RTU supplied at above mention station and LD & C , Gurgaon POWERGRID has already intimated NTPC /NHPC ,Now concerned stations has to take care of any maintenance / procurement of new RTU etc .

In special PRM meeting held on 07.06.2016, it was felt that the issue needs to be addressed by NTPC/NHPC and same was referred to TCC

NTPC/NHPC may update the status.

Deliberation in the TCC meeting

NTPC and NHPC informed that PGCIL is owner of the RTUs so they have to maintain the RTUs.

PGCIL informed that AMC will expire by July 2016 as the RTUs were supplied under old ULDC scheme and PGCIL could extend the AMC for further one year.

After detailed discussion, TCC advised PGCIL, NHPC and NTPC to resolve the issue bilaterally at their highest authorities.

ERPC may note.

ITEM NO. E11 :	**Connectivity of Unit Control Room with Orange Exchange at ERLDC**

It may be mention that POWERGRID has supplied Orange phones under hot line communication system: one two wire analog and one VOIP (Voice Over Internet Protocol) phones are already supplied at NTPC Kahalgaon , Talcher Super Thermal , Farakka and Barh and MPL.

Switchyard of above stations are already connected with ERLDC Orange exchange via VOIP phone. Unit control room connectivity has to be done by Plant themselves. Plant have to laid cable between Unit and Switch yard control room for analog phones already provided at Switch yard control room (Communication channel is already ready for station to ERLDC).

GMR, JITPL, Indbharat, SEL has to make arrangement for connection with Orange Exchange at ERLDC (As per connection Agreement responsibilities lies with user).

In special PRM meeting held on 07.06.2016, it was felt that the issue needs to be addressed by NTPC/NHPC/IPPs and same was referred to TCC

NTPC/NHPC/IPPs may update the status.

Deliberation in the TCC meeting

NTPC informed that they are ready by 15th July 2016.

After detailed discussion, TCC advised PGCIL, NHPC and NTPC to resolve the issue bilaterally.

ITEM NO. E12 :	Erroneous recording of data by Interface Meters

i. Patratu(DVC)

SEM data received from Patratu(DVC) of 132 KV Patratu(DVC) – Patratu (JUVNL) line showing erroneous(around 50% recording Less as compared to JUVNL end) since charging of the line on 16.05.16. Accounting of DVC is being done by Standby meter at JUVNL end.

In the last Commercial sub committee meeting held on 10.06.2016, PGCIL informed that the line was under shutdown since a long time. DVC assured to check the CT/PT and inform the same to PGCIL and ERLDC before the ensuing TCC meeting.

DVC may update the status.

Deliberation in the TCC meeting

DVC informed that they would coordinate with JUSNL and get the issue resolved.

ii. Joda (OPTCL)

SEM data received from Joda (OPTCL) end of 220 KV Joda (OPTCL) – Ramchandarpur (JUVNL) line is showing erroneous(15-20% Less recording as compared to Ramchandarpur end) since 14.01.16. Matter was intimated to official of Joda OPTCL. In 119th OCC, OPTCL informed that SEM at Joda end needs to be checked and corrected. OPTCL informed that there is no line CT, so 2 nos SEM for the bus-coupler at Joda end is required. In 121st OCC, ERLDC suggested to place one meter at B/C and to check healthiness of existing SEM at Joda end of Ramchandarpur Line. Till now meter has neither been placed on B/C nor got existing meter rectified.

In the last Commercial Sub Committee meeting, PGCIL informed that they are having shortage of SEMs at present. However, some SEMs have been arranged and the metering at B/C of Joda would be completed before the ensuing TCC meeting.

PGCIL may update the status.

Deliberation in the TCC meeting

PGCIL updated that the meter placement at bus coupler at Joda could not be completed due to non availability of s/d of 220 kV Joda-Jindal line. The available SEM at 220 kV Joda-

Jindal line is to be used with B/C CT. OPTCL informed that before removal of SEM from220 kV Joda-Jindal line they need to install Secure make meters for their own accounting purposes.

It was agreed that at the earliest available opportunity, OPTCL will allow s/d of the line and then both OPTCL and PGCIL could replace the meters.

iii. Reverse polarity of SEM installed at Joda in OPTCL

SEM is installed at both end of 132 KV Joda-Kendiposi Line. It was observed that Joda end meter is showing reverse polarity. The matter was also reported to OPTCL official. However as per the SEM data received from Joda, the polarity of the Joda end meter is still reversed and the problem persists.

In the last Commercial Sub Committee meeting held on 10.06.2016, OPTCL informed that they have got the CT polarity checked and the same is found correct and there may be problem in SEM polarity.

PGCIL and ERLDC clarified that meter terminals do not have any specific polarity requirement and the issue may have arisen due to treatment of star point.

PGCIL was requested that during their visit to Joda S/s for replacement of meter, they should also check and give their inputs on the reverse polarity issue.

PGCIL may inform their observations.

Deliberation in the TCC meeting

It was informed in the meeting that the polarity issue has been resolved. ERLDC confirmed the same.

ITEM NO. E13 :	**By passing of SEMs at Kendiposi at JUSNL**

SEM is installed at both end of 132 KV Kendiposi (JUSNL)-Joda (OPTCL) Line. As per the SEM data received from 132 KV Kendiposi (JUSNL), readings of meter (Serial No. NP-6117-A) installed at Kendiposi end of 132 KV Kendiposi-Joda Line is not recording any flow compared to Joda end since long. It was gathered from Kedniposi that line is feeding load to Naumundi (JUSNL) regularly through Transfer Bus of Kendiposi by passing the SEM at Kendiposi.

Further Power from Joda is occasionally received at Main Bus of Kendiposi. In that case Meter installed at Kendiposi end of Joda Line records the energy flow through the line. In absence of non-recording of data by SEM installed at Kendiposi end of the aforesaid Tie line, data validation and energy accounting is being affected. Presently energy accounting is being done considering Joda OPTCL end meter.

Bypassing of SEM installed at Tie line is violation of CEA metering regulation 2006 and the same is needed to be restored. JUSNL may also confirm CT availability on the transfer bus.

In the last Commercial Sub Committee meeting held on 10.06.2016, JUSNL representative was not present therefore no discussions could be held on the bypassing of SEM.

ERLDC informed that as gathered by them, CT is available on the transfer bus. PGCIL was requested to install meter on the transfer bus at Kendiposi. PGCIL agreed.

ERLDC may elaborate. Members may discuss.

Deliberation in the TCC meeting

JUSNL representative was not cognizant of the issue regarding bypassing of meter at Kendiposi. JUSNL was advised to get the information collected and place before the ERPC tomorrow.

TCC observed that by passing of meter being violation of CEA metering regulation should never be resorted to. In order to get proper metering, JUSNL will arrange for shutdown of the line and intimate the programme to PGCIL.

PGCIL thereafter would remove the meter from the bypassed CT and place it with the transfer bus CT. When the bypass would be removed, PGCIL will re shift the meter to original CT. JUSNL would provide a programme in 33rd ERPC meeting and PGCIL wlll do the needful shifting of meter.

JUSNL ,ERLDC, PGCIL agreed to the proposal.

ITEM NO. E14 :	Non Receipt of SEM data from Various Locations

i. Forbisganj at BSPTCL

Kishanganj (BSPTCL) end meter of 132 KV Purnea (PG) Line is not recording any flow compared to Purnea PGCIL end since 14:00 hrs of 29th June 2015. It was gathered that line is feeding load to Farbisganj at BSPTCL regularly through Transfer Bus of Kishanganj bypassing the SEM at Kishanganj. It was decided to place 02 nos of SEM at Forbesganj. In 31st CCM, BSPHCL representative informed that meter has been placed at Farbesgunj on 03.02.2016. In 121st OCC PGCIL informed that DCD for downloading the data has been handed over to BSPHCL. However ERLDC has not received the SEM data till now.

In the last Commercial Sub Committee meeting, BSPTCL informed that the matter was due to upgradation of operating system and software compatibility issues. However, it was assured that the matter would be resolved at the earliest.

BSPTCL may update.

Deliberation in the TCC meeting

PGCIL informed that the DCD had become defective, so they have requested BSPTCL to provide a laptop in which they would install the software for meter data download. BSPTCL informed that they have provided PGCIL the laptop. PGCIL confirmed that after loading the software they will return the laptop on Monday, 27.06.16

i. Santaldih in WBSETCL

SEM from Santaldih for 220 KV Santaldih (WB)-Chandil (JUVNL) Line is not reporting either in DCU of AMR system or communicating through DCD since 28.01.16. In 121st OCC, Powergrid informed that the defective meter will be replaced at earliest. ERLDC has not received the replacement details of meter.
In the last Commercial Sub Committee meeting, PGCIL informed that they could not replace the meter due to shortage of meters with them. However, some meters are now available and the issue would be resolved before the ensuing TCC meetings.

PGCIL may update.

Deliberation in the TCC meeting

PGCIL informed that the meter has been replaced.

ITEM NO. E15 :	Installation of SEM at Haldia

SEM is placed only at Subhashgram (PG) end of 400 KV Haldia (CESC)-Subhashgram (PG) D/C. No standby SEM has been placed at Haldia end till now. In absence of Subhashgram end data; there is no back up meter available for accounting of the power flow through that Tie line.

In 32nd TCC/ERPC, CESC informed that they have already processed and requisite SEM meter will be positively installed by May'2016. Unfortunately, till now issue is not resolved and ERLDC has neither received the details of SEM nor received weekly SEM data.

In the last Commercial Sub Committee meetings, members expressed concern over non resolution of the issue by CESC even after decision in the highest forums. It was decided to again refer the issue to TCC for update.

CESC may update.

Deliberation in the TCC meeting

CESC informed that they have already changed the meters recently. ERLC confirmed.

ITEM NO. E16 :	Non-submission of weekly SEM readings by Tuesday noon from non-AMR locations/faulty AMR locations

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

By Wednesday or later: APNRL, Gaya, Kishanganj, Rangpo, Kahalgaon NTPC,

APNRL, PGCIL & Kahalgaon NTPC are once again requested to please adhere to the schedule.
In the last Commercial Committee meeting, ERLDC informed that nearly 90% of data were received for AMR implemented meters.

For Gaya, PGCIL informed that there were some AMR related issues which would be settled by next week. Kishangunj and Rangpo were yet to be incorporated in AMR scheme. Data for APNRL is coming in time.

In Kahalgaon NTPC there is problem in AMR data from two meters and therefore, manual data for the station is being collected. PGCIL requested ERLDC to share the serial no of the meters for further action tat their end.

APNRL, PGCIL & Kahalgaon NTPC may update.

Deliberation in the TCC meeting

ERLDC informed that problem at Gaya has been rectified and data from APNRL, PGCIL & Kahalgaon are now coming through the AMR system.

ITEM NO. E17 :	Future requirements of SEMs and DCD/Laptops

In 30th ERPC meeting procurement of 965 no of SEM's and 110 nos of Laptop/DCD (in 111th OCC meeting) was approved. Further 31st TCC/ERPC approved the cost sharing mechanism of expenditure on SEM's and DCD/Laptops along with POWERGRID overhead charges @ 15% to be shared by the beneficiaries constituents of Eastern Region in proportional to the share allocation for the month in which the proposal was approved in the ERPC meeting. In 32nd TCC/ERPC, Powergrid intimated that order had been placed on 15.03.2016.

In the Commercial Committee meeting held on 10.06.2016, PGCIL informed the meters are expected to be delivered @ 25% every 4 month period. It was also informed that the award had been given to M/s Janus Power. PGCIL clarified that these meters have bulk time correction facility.

Powergrid may update.

Deliberation in the TCC meeting

PGCIL informed that order has been placed with M/s Janus Power and delivery is expected in six phases starting August'16.

ITEM NO. E18 :	Reactive Energy Charges – present status

The updated position of Receipt/Payment of Reactive Energy Charges in the pool as on 31.05.2016 (considering bill up to 08.05.2016) is indicated in **Annexure-B27**. The total outstanding receivable on account of Reactive charges from WBSETCL/WBSEDCL is ` 8.84 Cr. Due to non-payment by WBSETCL/WBSEDCL, ERLDC have started getting reminders from other recipient constituents regarding liquidation of outstanding from ER Reactive pool.

WBSETCL/WBSEDCL may confirm the program for payment of outstanding dues

Deliberation in the TCC meeting

ERLDC informed that the reactive charges outstanding against West Bengal were Rs. 10.79 Cr. WBSETCL informed that they have already taken up with their SLDC for finding out a sharing mechanism for the Reactive charges payable by West Bengal by its utilities and the issue would get sorted shortly.

ITEM NO. E19 :	Eastern Region Fibre Optic Expansion Project (Additional Requirement)

Implementation of OPGW based communication on following lines/locations was approved on tariff route basis in various ERPC meetings as described below:

Sl	Location	Lines	Length (km)	Remarks
1	Pandiabill	400 KV Baripada-Duburi-Pandiabil	290	Redundant link for Pandiabill S/s approved in 27th ERPC meeting
2	Chuzachen	132 KV Rangpo-Chuzachen	22	Main link for Chuzachen approved in 27th ERPC meeting.
3	Teesta III	400 KV Teesta III - Kishangunj	212	Main link for Teesta III approved in 27th ERPC meeting.
4	TLDP	220 KV TLDP - NJP	81	Main link for TLDP approved in 27th ERPC meeting
5	Motihari	400 KV Barh-Gorakhpur	354	Main and standby link for Motihari through LILO of Barh-Gorakhpur at Motihari. Approved in 31st ERPC.

6	Dhanbad	400 KV Ranchi-Maithon RB	188	Main and standby link for Dhanbad through LILO of Ranchi-Maithon RB at Dhanbad. Approved in 32nd ERPC.

OPGW based communication system on above-mentioned lines (1147 km) as approved by ERPC, is being implemented as "***Eastern Region Fibre Optic Expansion Project (Additional Requirement)***". The investment made by POWERGRID on this project shall be recovered through tariff to be determined by CERC.

Deliberation in the TCC meeting

MS, ERPC appraised that OPGW for above lines was already approved in various ERPC meetings.
TCC approved the proposal of PGCIL to include the above OPGW as Eastern Region Fibre Optic Expansion Project (Additional Requirement)

ITEM NO. E20 :	**Standardization of OPGW in lieu of One Earth Wire in all Transmission lines**

i) The Power System requirement for Communication is increasing multifold due to
   a. special protection scheme
   b. Ever increasing data reporting to Load Dispatch Centre.
   c. Phasor measurements based data collection and reporting.
   d. Remote monitoring/operation of sub-station/elements.
   e. Differential protection on Lines

   The practice of putting fiber in selected lines lead to situation where station connectivity is held up due to either identified line delay or LILO of under construction line etc.

ii) OPGW installation on existing lines is delayed due to shut down, ROW issues.

iii) It is proposed to include one 24 Fiber (OPGW) in all transmission lines which will ensure availability of wideband Communication from all substations to cater bandwidth for various power system application for which communication equipment (SDH– STM-16) shall be provided at all upcoming substations.

iv) Further in the Meeting Chaired by secretary (Power), Govt of India on "Reliable communication System upto 132kV Substations level" , it was decided that considering importance of reliable communication in various applications and difficulties in installation of OPGW under O&M stage, the provision of OPGW in place of one of the earthwire should be kept in all the upcoming lines so that OPGW is installed during construction of line. (Copy of the Minutes of meeting enclosed at Annexure-I). It will also ensure availability of wideband Communication from all substations to cater bandwidth for various power system

applications for which communication equipment (SDH– STM-16) shall be provided at all upcoming substations.

Deliberation in the TCC meeting

MS, ERPC appraised that the constituents agreed to the proposal in 18th SCM.

ITEM NO. E21 :	OPGW installation work of DSTPS – RTPS link of DVC

In order to obtain fibre connectivity at DSTPS (GS) and RTPS (GS), OPGW installation work has been taken up by POWERGRID for this link. Out of 70km, 55km installation work has been completed and 16 km work has been held up in three sections of the line since last two years due to non-payment of compensation during construction of the line. Several meetings have been conducted with DVC authority for clearing the ROW after making unpaid compensation payment to the affected landowners. Issue has not yet been resolved. POWERGRID executing agency has made multiple mobilisation to execute the work but failed due to resistance from the effected landowners.

DVC may comment.

Deliberation in the TCC meeting

PGCIL informed that they have mobilised the gang 6 to 7 times but the work could not be taken due to unresolved ROW issues.

PGCIL expressed that if clearance is not arranged by DVC within a month PGCIL could hand over all the materials to DVC and demobilise the gangs.

DVC opined this bilateral issues will be resolved with PGCIL mutually.

ITEM NO. E22 :	Installation of 2nd 220/132 kV 100 MVA ICT at Muzaffarpur – Interim Arrangement for India – Nepal Interconnection through Muzaffarpur (India) – Dhalkebar (Nepal) 400 kV D/c line

Muzaffarpur (POWERGRID) - Dhalkebar (NEA) 400 kV D/c line (to be operated at 220kV) has been implemented for interconnection of India and Nepal grids. In view of delay of 220 kV sub-station at Dhalkebar, one circuit of Muzaffarpur – Dhalkebar 400 kV D/c line is presently under operation at 132 kV as an interim arrangement by installation of 220/132 kV 1x100 MVA ICT from regional pool of spare ICTs at Muzaffarpur and about 80 MW power is being transferred through this link from India to Nepal.

Subsequently, Nepal has requested for additional power transfer through this link. Accordingly, it is proposed to install 2nd 220/132 kV, 100 MVA ICT from regional pool of spare ICTs, at Muzaffarpur (POWERGRID) substation in parallel to existing 220/132 kV, 100 MVA ICT, as a goodwill gesture. This interim arrangement shall be removed when 220 kV Dhalkebar substation gets commissioned and Muzaffarpur – Dhalkebar 400 kV D/c line is

operated at 220 kV. The proposal has been agreed in the 18th Standing Committee Meeting on Power System Planning in Eastern Region held at Kolkata on 13-June-2016.

Members may approve.

Deliberation in the TCC meeting

MS, ERPC appraised that the constituents agreed to the proposal in 18th SCM.

ITEM NO. E23 :	Mismatch of network at the time of DOCO

CERC vide some of its recent orders has strongly commented against assets mismatch noticed at the time of declaration of DOCO & has advised the following:

> *"In case of cost plus, the mismatch between Generation / Downstream network / Upstream network, Transmission licensee will not burden the consumers and the charges would be compensated through the IA between the parties".*

CERC vide its orders has not included such assets in PoC and in cases of declaration of DOCO, it has been directed to recover transmission charges from concerned Generator / STU / Discoms. Further, following has been mentioned in the CERC (IEGC) (Fourth Amendment) Regulations, 2016, dated 6/4/16 under 5.4. Proviso (iii):

> *"Where the transmission system executed by a transmission licensee is required to be connected to the transmission system executed by any other transmission licensee and both transmission systems are executed in a manner other than through tariff based competitive bidding, the transmission licensee shall endeavor to match the commissioning of its transmission system with the transmission system of the other licensee as far as practicable and shall ensure the same through an appropriate Implementation Agreement."*

Keeping above in view, STUs are requested to ensure utilization of the 220kV line bays and also sign the implementation agreement for same.

Members may note.

Deliberation in the TCC meeting

TCC noted.

ITEM NO. E24 :	Connectivity issues of MPL

Maithon Power limited has tied up its entire capacity with the following beneficiaries under long term PPA.

Beneficiary	MW
TPDDL	300
DVC	300
WBSEDCL	300
KESB	150

Recently DVC has surrendered some portion of their capacity which has tied up with Kerala State Electricity Board Limited. However all the beneficiaries of MPL has obtained their long term open access after considering 6.5% auxiliary consumption which is as per CERC regulation 2009-14. Under the current CERC Tariff regulation 2014-19 the auxiliary consumption is 5.75%. MPL seeks TCC, ERPC's intervention in directing its beneficiaries for obtaining long term open access as per the 2014-19 regulations.

Deliberation in the TCC meeting

MS, ERPC opined it is a connectivity related issue and advised MPL to have interaction with CTU.

ITEM NO. E25 :	**Construction of 132 kV D/C Deoghar – Banka line for reliable power supply to Railway TSS from 132 kV Deogarh (JSEB) S/S**

The issue was discussed in the 16th Standing Committee meeting of ER held on 2nd May, 2014 and the 132 kV D/C Deoghar – Banka line was agreed as an interstate line.

The 27th TCC & ERPC concurred the decision of standing committee.

Considering importance of Railway supply Powergrid was entrusted to construct the line.

However in 32nd TCC, JUSNL informed that there is a space constraint at Deoghar S/s for constructing bays for this line and proposed to shift this line to their new substation Jasidih in Deoghar area which is 5 km away from Deoghar S/s.

TCC felt that 132 kV Banka- Deoghar D/C line was placed before 16th Standing Committee and Powergrid was entrusted to construct the line after detailed deliberation. TCC expressed, at this juncture it would not be prudent to scrap this proposal.

JUSNL informed that Jasidih S/s is also located in Deoghar area and terminating Banka to Jasidih will not affect the reliability of power supply to the railway.

CTU informed that JUSNL proposal may be discussed at CEA and the best solution may be put forward.

In 4th SSCM, BSPTCL informed that from 400/132 kV Banka (PG) S/s Bihar is already drawing power through six 132 kV feeders and if Deoghar is also connected then for fulfilling the (n-1) criterion there would be requirement of ICT augmentation. Now, 220 kV Dumka S/s has also been commissioned in Jharkhand so the possibility of 132 kV feeder from Dumka may be envisaged for reliable power to Railways.

Members also raised their concern about how the reliable power can be assured by terminating the line at Jasidih GSS which is still under proposal/construction stage. Also, whether JUSNL will be able to operate the Deoghar S/s with their bus-coupler in on condition.

JUSNL however assured that on commissioning of 220/132/33 kV Jasidih and 132 kV D/C Jasidih-Deoghar the Railways will get the reliable power. But no immediate solution to Railway supply from Deoghar was envisaged as both the S/S at Joshidih and D/C line from Joshidih are getting delayed.

After detailed deliberation, it was decided that the above proposal will be reviewed and alternative proposals could be placed in the SCM.

In 18th SCM the following new proposals were placed:

The line was basically intended to supply reliable power to Railways and its construction has already been delayed by two years. Therefore considering the urgency of improving power supply reliability of Railways the following options may be explored, instead of depending on construction Jasidih S/Stn of JUSNL:

(a) SinceJasidih 220/132kV S/Stn and 132kV Jasidih-Deoghar D/C line is yet to be constructed, JUSNL may provide only the two 132kV bays at Deoghar for termination of the D/C 132kV line from Banka(PG) and subsequently explore construction of two more 132kV bays at Deoghar for the line to Jasidih. Further, instead of Banka, a 132kV D/C line from Dumka 220/132kV S/Stn of PGCIL can also be thought of.

(b) In case it is not at all possible to accommodate two more 132kV bays at Deoghar and yet it is required to be connected to Jasidih S/Stn, each of the circuits of the proposed Banka-Deoghar D/C line may be LILOed at Jasidih in phased manner, after their 132kV bays at Jasidih become ready.

(c) At present Shankarpur TSS is supplied through a S/C 132kV line from Deoghar, due to which there is no network redundancy between Deoghar GSS and Shankarpur TSS. Railways may therefore examine the feasibility of terminating a132kV D/C line either from Banka or from Dumka (PG) directly at their Shankarpur TSS, in their own interest of availing reliable power supply.

(d) If one new 132kV bay can be constructed at Shankarpur TSS, then feasibility of supplying power directly to Railways from Dumka 220/132kV S/Stn or Banka S/Stnof PGCIL through a 132kV D/C line may be explored. In that case, one of the 132kV circuits would be terminated at the new bay at Shankarpur while for termination of the other circuit, the existing bay will become free if 132kV Deoghar-Shankarpur S/C line is disconnected at Shankarpur end.

However, for supplying Railways from Dumka (PG), augmentation of 400/220kV ICT capacity at Maithon (PG) is a pre-requisite.

In 18th SCM the issue was deliberated threadbare and it was decided that a special meeting

with all concerned parties including Railway will be convened by CEA shortly to review the situation for a final decision.

ITEM NO. E26 :	Implementation of Automatic Demand Management Scheme (ADMS)

Regulation 5.4.2 (d) of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 (Grid Code) provides for implementation of demand management schemes by State Load Despatch Centre through their respective State Electricity Boards/Distribution Licensees. This is a basic measure towards ensuring grid security. Due to non-implementation of this scheme so far, CERC vide order dated 31-12-15 on **Petition No. 5/SM/2014** had directed all constituents as follows:

"However, considering the request of the respondents to grant time to implement ADMS, we grant time till **30.6.2016** to the respondents to implement ADMS, failing which they will be liable for action under Section 142 of the Act for noncompliance of the Regulation 5.4.2 (d) of the Grid Code and order of the Commission. RLDCs are directed to submit the report in this regard by 31.8.2016."

In 120th OCC meeting, *Powergrid informed that it is possible to implement in new SCADA system.*
After detailed deliberation, OCC referred the issue to 7th PRM meeting for further course ofaction.

Members may therefore kindly ensure compliance of CERC's order as stated above and furnish details of ADMS implementation in their respective states / control areas by 24-06-16.

In 7th PRM meeting, m*ember Secretary, ERPC briefed the members about the need for compliance of the CERC directive for implementing Automatic Demand Management scheme (ADMS) in their respective systems. He informed that on the request of the constituents, the issue was taken up with POWERGRID for inclusion of ADMS in the new SCADA system project under ULDC. He further informed that POWERGRID vide their letter dated 22.04.2016 have communicated that automatic load shedding and restoration feature named "Load Shed Support (LSS)" is already provisioned and tested in the new SCADA system for substations upto 132 kV.*

While discussing the issue in detail, it emerged that this feature can be implemented in ER constituent systems (WB, DVC, BSPTCL, JUSNL and Sikkim), upto 33 kV side as the telemetry of 33kV side has also been included in the SCADA project just implemented. M/s Chemtrols who are implementing the system, were asked to give their views on this.
M/s. Chemtrols informed the following:

a) *On all the new RTUs supplied by them, the 33 kV side telemetry is covered and they have provided the DO (digital output) cable up to CR panel. The DO cable has already been laid and terminated in C&R panel wherever constituent's testing team facilitated. In BSPTCL system, this DO wiring has been done for majority of RTUs commissioned, while in WB and DVC systems, the termination of DO wiring points was not facilitated at the time of commissioning. The same is now in progress in DVC*

system. DO wiring will be done simultaneously on the 12 Nos. of RTUs under commissioning in WB system. However, they requested constituents to ensure the availability of their Testing Teams to facilitate the same.

b) *Chemtrols further informed that this DO control cannot be exercised for the existing RTUs in the constituent systems.*

c) *OPTCL system does not have the provision for LSS. (DO command and control).*

After detailed deliberation the following schedule was given to Chemtrols for wiring of DO in BSPTCL, DVC, WB and JUSNL systems till 30.06.2016.

BSPTCL: 50 stations
WB: 10 stations (where New RTUs are under commissioning)
DVC: 12 stations (where work is already in progress)
JUSNL: 2 stations

M/s Chemtrols stated that they will try their best to follow the above schedule. However, the deployment/availability of testing team shall have to be ensured by the constituents. Constituent agreed to deploy Testing team as per requirement on priority.

Regarding implementation of the ADMS in OPTCL, OPTCL informed that they will discuss the matter with appropriate management and will intimate the same at the earliest.

In special PRM held on 7th June, 2016, Chemtrols provided the following status of DO implementation:

Constituent	Target by June end	Actual
Bihar	50	67
DVC	12	17
WBSETCL	10	65**
Jharkhand	2	2

(**As per the WB instruction, In all RTUs of WB the DO cable has been terminated in the C&R Panel TBs. WBSETCL testing Team to further extend the connections to the trip relays)

ITEM NO. E27 :	**Connectivity of Bangladesh and Bhutan NLDC with Orange Exchange at ERLDC**

POWERGRID has informed that under hotline communication project, for connectivity of India with Bhutan and Bangladesh there is need of Ethernet connection (2 MBPS) between NLDC Bangladesh –ERLDC Kolkata and NLDC Bhutan –ERLDC Kolkata.

Updates on the status of availability of Ethernet channel between respective two countries are required from POWERGRID India / NLDC Bhutan / NLDC Bangladesh so that VOIP phones may get connected with ERLDC Kolkata Exchange.

In special PRM meeting held on 07.06.2016, the issue has been deliberated and all agreed that being an international link at Bangladesh and Bhutan NLDC, existing voice facility with Bangladesh and Bhutan with ERLDC and NLDC will be continued to be maintained.

ITEM NO. E28 :	Payment/Receipt Status from various pool accounts in ER

1. Congestion Account - Present Status

The status of congestion charge payment after full settlement is enclosed at **Annexure – C4.1.**

2. Status of PSDF

An amount of ` 2.50 Cr from Reactive account & ` 33.64 Cr from Deviation Pool account have been transferred to PSDF after 31st Commercial sub-committee meeting held on 05.02.16. With this the total amount of ` 883.39 Cr. has been transferred to PSDF so far. The break up details of fund transferred to PSDF (till 31.05.16) is enclosed in **Annexure – C4.2**.

3. Disbursement of Interest due to delayed payment of deviation charges

ERLDC has recovered an amount **` 20.40062 Lacs** from M/s APNRL and **` 165.72820 Lac** from BSPHCL towards interest due to delayed payment of deviation charges in FY 2015-16. Above Interest amount is disbursed amongst recipient constituents as mentioned in **Annexure-C4.3** and the balance amount of **` 59.34044 Lac** is transferred to PSDF Account.

With this, interest amount receivable by constituents of ER for FY 2015-16 due to delayed payment of Deviation Charges is fully settled.

This is for information to the members.

4. 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 31.05.2016 (considering bill up to 08.05.2016) is indicated in **Annexure – C4.4.**

In the last Commercial Committee meeting held on 10.06.2016, NTPC requested constituents to share their bank account details so that payment may be credited at the earliest. NTPC also informed that many of the constituents desired for adjustment from bills rather than receiving payment. Commercial Committee felt that in case some constituents were agreeable to adjustment against bills NTPC may adopt this procedure with mutual consent. NTPC informed that they have have already put across their concerns to NLDC.

5. Reconciliation of Deviation Accounts

At the end of 4th quarter of 2015-16, the reconciliation statement (Period: 01.01.16 to 31.03.16) has been issued by ERLDC on 05.04.16 and statements had been sent to the respective constituents and also uploaded the same at ERLDC website (www.erldc.org) on

05.04.2016. The constituents were requested to verify /check the same & comments if any on the same were to be reported to ERLDC by 20.04.2016. The status of reconciliation is enclosed in **Annexure – C4.5**.

JUVNL, SIKKIM, & Ind Barath have not signed reconciliation statement for 4th Qtr of 2015-16. Further JUVNL, SIKKIM & Ind Barath have not signed reconciliation statement for more than last 4 quarters.

Above constituents are once again requested to submit the signed reconciliation statement at the earliest. If the confirmation is not received within 2 weeks from the date of issuance of the letters the statements issued by ERLDC have been deemed to be reconciled.

6. Reactive Account

At the end of 4th quarter of 2015-16, the reconciliation statement (Period: 01.01.16 to 31.03.16) has also been issued by ERLDC on 05.04.16 and statements had been sent to the respective constituents. The constituents were requested to verify /check the same & comments if any on the same to be reported to ERLDC by 20.04.2016.

WBSETCL have not reconciled the Reactive account. If the confirmation is not received within 2 weeks from the date of issuance of the letters the statements issued by ERLDC have been deemed to be reconciled

ITEM NO. E29 :	**Short Term Open Access payment/receipts reconciliation**

I. For STOA payments made to SLDC / STU :

The reconciliation statements of STOA payments for the period Apr'15 to Dec'15 have been send to the DVC, OPTCL and WBSETCL for checking at their end and confirmation.

OPTCL has confirmed for entire period except for the month of Dec'15. WBSETCL is yet to confirm for the period of Oct'15 to Dec'15. 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.

II. For payments received from STOA applicants:

The payment receipt statements of STOA for the period of Dec'12 to Mar'13, FY-2013-14 , FY-2014-15 and Apr'15-Dec'15 have been send to the BSEB, JSEB, JITPL, GRIDCO, WBSEDCL, SEL , TSL, GMRKEL for checking at their end and confirmation.

Signed reconciliation statements have been received from BSEB for the period of Dec'12 to Mar'13 only. JSEB has not confirmed for the entire period of FY-2014-15 and Jul-15 to Sep-15. JITPL has confirmed and signed reconciliation statements for the entire period except Jul-15 to Sep-15. GMRKEL is yet to confirm for the period of Apr-15 to Jun--15 only. GRIDCO has confirmed and signed reconciliation statements for the entire period except Sep-14.

WBSEDCL has confirmed and signed reconciliation statements for Nov'13, Dec'13, Jan'14, May-14 and Oct-14 only. 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 is attached in the **Annexure-C5**.

ITEM NO. E30 :	**Commercial issuesrelated to NHPC Stations**

1) Non-opening of LC of requisite value :-

(i) **NBPDCL** has to provide LC of **Rs. 6.65 Crs**. Similarly, **SBPDCL** has to provide Letter of Credit of **Rs. 8.44 Crs**. But NBPDCL has provided LC of **Rs.** 2.10 Crs and SBPDCL **Rs.** 2.90 Crs which are far short of requisite values.

In the last Commercial Committee meeting NHPC informed that they are receiving regular payments from SBPDCL/NBPDCL.

2) Payment of outstanding dues for more than 60 days.

i) <u>NBPDCL</u>

An amount of **Rs. 1.96 Crs** is outstanding for more than 60 days including surcharge of **Rs. 0.16 Crs**.
In the last Commercial Committee meeting Representative from SBPDCL/NBPDCL informed that they would liquidate the outstanding at the earliest.

ii) <u>SBPDCL</u>

An amount of **Rs. 12.23 Crs** is outstanding for more than 60 days including surcharge of **Rs. 0.23 Crs**
In the last Commercial Committee meeting Representative from SBPDCL/NBPDCL informed that they would liquidate the outstanding at the earliest.

3) Extension of BPSA in r/o Rangit & Teesta-V Power Stations

NHPC is regularly following-up with Sikkim, JUVNL,GRIDCO,NBPDCL,SBPDCL & DVC to extend the BPSA up to 35 years from COD of last unit or balance normative life of Rangit & Teesta-V Power Stations, whichever is later on existing terms and conditions . NHPC has not received the consent of either of the beneficiary till date.

In the last Commercial Committee meetings, representative from JUSNL was not present. NBPDCL/SBPDCL, GRIDCO, Sikkim and DVC informed that the issue is under process at their end and the issue will be resolved at the earliest.

4) Signing of PPA in respect of Teesta-IV H.E.Project.

Signing of Power Purchase Agreement is pending with GRIDCO, SBPDCL & NBPDCL inspite of regular follow up with these discoms. As per the request of many beneficiaries for withdrawal of 'Payment security clause' in the form of 'Default Escrow Arrangement', NHPC replaced this from draft PPA by adopting L.C. as a payment security mechanism.

In the last Commercial Committee meetings, NBPDCL/SBPDCL informed that the issue would be resolved shortly. GRIDCO representative informed that the matter was under consideration of management and would take some more time.

5) Signing of PPA in respect of Tawang H.E.Project, Stage-I & II.

Signing of Power Purchase Agreement is pending with GRIDCO, SBPDCL, NBPDCL, WBSEDCL, Sikkim and JUVNL in spite of regular follow up with these discoms. As per the request of some of the discoms for withdrawal of 'Payment security Mechanism' in the form of 'Default Escrow Arrangement', NHPC has withdrawn this clause from draft PPA in respect of future projects also.

In the last Commercial Committee meetings, Representative of GRIDCO, SBPDCL/NBPDCL, WBSEDCL and Sikkim informed that the issue was under consideration and an outcome is likely soon.

6) Deviation Charges (Issue with ERLDC).

At the time of issue of revision of deviation charges the whole amount pertaining to the concerned week are shown and the date of revision is considered as date of issue of deviation statement. As a result, original date of deviation statement get overlooked which result in difference in calculation of interest. It is suggested that only the differential amount i.e. difference of amount of original deviation charges and revised deviation charges may be shown in the revision statement so that interest of deviation charges may be calculated accordingly. NHPC has recorded this point on reconciliation statement for a number of times but appropriate action is still awaited.

In the last Commercial Committee meeting, it was clarified to NHPC that they would not be commercially affected due the process being followed for revision of Deviation Accounts.

7) Combining of deviation charges statement (Issue with WBSLDC).

After commissioning of two units of TLDP – IV, Receivable & Payable amounts of deviation charges of TLDP-III & TLDP-IV are being shown separately in the accounting of deviation charges statement by WBSLDC. It has been observed that overall amount for both power stations is receivable but for individual power station it is payable. In that case, in spite of overall net amount receivable we have to pay for payable amount of individual power station. In this regard, it is requested that net payable & receivable amount may also be shown in the

summery sheet of deviation charges so that payment can be released on the basis of that statement.
WBSETCL/WBSLDC may opine.

In the last Commercial Committee meeting this agenda could not be taken up due to non participation of WBSETCL/SLDC. However, NHPC was requested to speak to WBSLDC for resolution of the issue.

ITEM NO. E31 :	**State Transmission Utility Charges and Losses applicable for STOA for FY 2016-17**

As available with ERLDC, the STU charges and losses as available with ERLDC are as given below. Constituents are requested to kindly intimate ERLDC in case of any change in the fugures at the earliest.

Name of STU	**Intra-State Transmission Charges**	**TRANSMISSION LOSS (For Embedded entities)**
WBSETCL	*	3.70%
DVC	Rs. 80 / MWh	4.30%
OPTCL	Rs. 62.5 / MWh	3.70%
JSEB	*	#
BSEB	*	#
SIKKIM	*	#

N.B:
* Indicates rates yet to be furnished by concerned State Utilities. Transmission Charges for use of state network shall be Payable @ Rs.80 per MWh as per subsequent Amendment regulation 2009-dated 20.05.2009.
# Not yet intimated by the State Utility.

ITEM NO. E32 :	**Time correction of SEMs in Eastern Region**

The drifting of meter time was important in commercial terms since the reading for a block for a time drifted meter might not be true and lead to erroneous calculation of Deviation Charge for that constituent. Further, it was decided to keep this as a standing agenda in Commercial Sub Committee meetings for monitoring. List of Time drifted (more than 5-6 min) meters in ER is enclosed in **Annexure-C8**.
In the 31st CCM, Powergrid informed that for new meters to be procured, technical feasibility of bulk time correction facility have been kept. For existing meters however, no bulk time correction was technically feasible. Constituents will have to make one minute adjustments per week to reduce the time drift and furnish the monthly status of time correction activities.
Angul & Rengali from PGCIL, APNRL, JLHEP, GMR, Chuzachen, Talcher NTPC, Sagardighi WBSEDCL and Miramundali(OPTCL) has done the necessary Time correction. Others are also requested to do the necessary Time Correction.

In the Commercial Committee meeting held on 10.06.2016, JITPL requested PGCIL to once demonstrate the time correction feature. PGCIL agreed. ERLDC informed the list at Annexure was a latest one. It was observed that significant proportion of time drifted meters belonged to PGCIL jurisdiction. PGCIL was advised to take necessary action to get the time corrected on a regular basis.

ITEM NO. E33 :	**Deputation of Nodal Officers by Regional Entities**

All Regional entities is requested to intimate the contact details of the Nodal Officer who could coordinate with their sites and ERLDC to ensure the following:

- Under - recording of SEM data due to reasons such as CT/PT input problems
- Polarity reversal
- Change in CT/PT ratio
- Meter replacements
- Completeness w.r.t no of meters and no of days
- Checking of time drift in meters: correction and reporting to RLDC
- Data non-availability due to reasons such as outage of Feeder etc.

It was requested to furnish the details like Name, designation, Mailing address, Landline No, Fax No, Email Id, Mobile No etc. to ERLDC for smooth transaction of SEM data.
So far details of Nodal person only from Teesta, NTPC ER-I(HQ), Talcher NTPC and GRIDCO have been received by ERLDC.

In the Commercial Committee meeting held on 10.06.2016, DVC provided the details of the nodal person. NHPC informed that they have already submitted the name of the nodal person for Rangit. All constituents were requested to submit the name of nodal person at the earliest.
PGCIL requested ERLDC to share the list of nodal persons for taking up meter/AMR related issues. ERLDC agreed.

Deliberation in the TCC meeting

BSPTCL informed that Shri. Jitesh Kumar, EEE/CRITL, BSPTCL will be the nodal officer.

ITEM NO. E34 :	**Declaration of Commercial Operation of Transmission Elements-Agenda submitted by Powergrid**

The list of transmission elements declared under Commercial operation is at **Annexure-C10.**

Members may please note.

ITEM NO. E35 :	**Implementation of Automatic Meter Reading in Eastern Region**

AMRs have been installed at 97 locations in 1st phase and 25 locations in 2nd phase in Eastern region. Due to addition of new substations/generating stations/transmission lines

in Eastern Region, another 25 new locations required to be added under AMR project as 3rd phase of implementation.

Inclusion of new locations and total cost involvement(including 5 years of AMC) for AMR 3rd phase were last discussed in 31st TCC/ERPC OCC meeting held on 13.11.15/14.11.15 wherein TCC/ERPC approved the cost of approximately Rs. 1.29 Cr ± 10%. Further ERLDC also furnished the list of meters already included in AMR and having problems in data sending(to be considered in AMC) along with Meters in new locations to be provided AMR and new meters to be provided AMR in existing locations due to addition of new lines. List of new locations with SEMs and Future locations to be incorporated are enclosed in **Annexure-C11.**

In the last Commercial Sub Committee meeting, ERLDC informed that they have already sent a list of meters for AMR to PGCIL. PGCIL informed that although the order to the vendor was placed for 16 locations, now the required number of locations had increased to 25 and negotiations were going on with the vendor for costs. The same would be placed for approval when received. MS informed that new meters may be needed to be integrated for Kanti Bidyut Utpadan Nigam Station of NTPC and requested ERLDC and PGCIL to consider them also.

ITEM NO. E36 :	**Matters related to Standing Committee Meeting on Power System Planning For Eastern Region**

As per the decision of 31st & 32nd TCC/ERPC the agenda items of the 18th SCM was deliberated in detail in 4th SSCM held on 06.06.2016 at ERPC, Kolkata. The deliberations of SSCM along with salient features on the important issues are placed here for information of the members:

1.0: Transmission System Strengthening in Indian System for Transfer of power from Mangdechhu Hydroelectric Project in Bhutan – Multi Circuit at Alipurduar end

The transmission system strengthening in Indian system for transfer of power from Mangdechhu HEP was approved in the 16th SCM of ER held on 02nd May 2014 and in the 27th TCC/ERPC held on 30th-31st May 2014 with following scope of works:

(a) Jigmeling – Alipurduar 400kV D/c (Quad) line (Indian Portion)
(b) Alipurduar – Siliguri 400kV D/c (Quad) line
(c) Kishanganj – Darbhanga 400kV D/c (Quad) line

As decided in the 33rd Empowered Committee Meeting, element (a) is being implemented by POWERGRID, whereas elements (b) and (c) are being implemented through tariff based competitive bidding (TBCB). The TBCB portion has already been awarded to M/s Kalpatru and procurement activities for POWERGRID portion has already commenced.

POWERGRID has informed that severe right of way problems are being faced for line entry at Alipurduar S/s. In view of the same, it is proposed to construct the Jigmeling – Alipurduar and Alipurduar – Siliguri 400 kV lines on Multi- Circuit (M/c) tower for about 5 km at Alipurduar end. The M/c portion would be built (along with conductor stringing in all four circuits), owned, operated and maintained by POWERGRID. The Alipurduar – Siliguri line

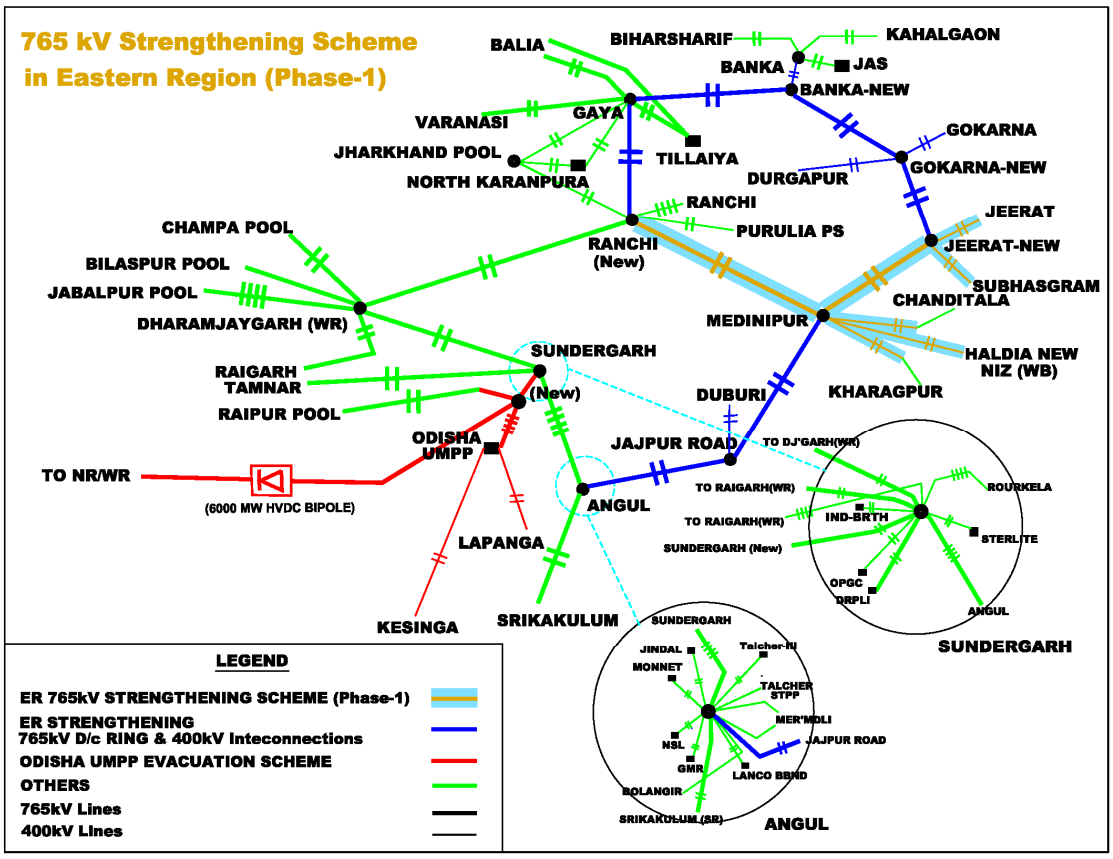
being built under TBCB would be terminated at start of the M/c portion. Accordingly, the coordinates of starting point of M/c portion has been provided in RfP document for termination of Alipurduar – Siliguri line.

In view of the above, members may approve the construction, operation and maintenance of Jigmeling – Alipurduar 400kV D/c line and Alipurduar – Siliguri 400kV D/c (Quad) line on Multi-Circuit (M/c) tower for about 5km at Alipurduar end by POWERGRID along with stringing of conductors in all four circuits.

In 4th SSCM, members agreed the following:

- *The 400 kV D/C Alipurduar – Siliguri line being built under TBCB would be terminated at start of the Multi-Circuit portion.*
- *Construction of Jigmeling – Alipurduar 400kV D/c line and Alipurduar – Siliguri 400kV D/c (Quad) line on Multi-Circuit (M/c) tower for about 5km at Alipurduar end by POWERGRID along with stringing of conductors in all four circuits.*
- *Operation and maintenance of Multi-Circuit (M/c) tower for about 5km at Alipurduar end by POWERGRID.*

2.0: Change of scope of the scheme under Eastern Region Strengthening Scheme-XVIII (ERSS-XVIII):



ERSS-XVIII scheme: 765 kV System Strengthening in ER (Phase-I) was agreed in the 17th meeting of the Standing Committee of Power System Planning in Eastern Region (SCPSPER)

held on 25th May, 2015 at New Delhi with the scope of works as given below:

i. Establishment of 765/400kV, 2x1500MVA substations at Medinipur and Jeerat (New)
ii. Ranchi (New) – Medinipur 765kV D/c line
iii. Medinipur – Jeerat (New) 765kV D/c line
iv. Medinipur – Haldia New (NIZ) (WBSETCL) 400kV D/c line (quad/HTLS)
v. LILO of Chandithala – Kharagpur 400kV D/c line at Medinipur
vi. Jeerat (New) – Subhasgram 400 kV D/c line (quad/HTLS)
vii. Jeerat (New) – Jeerat 400 kV D/c line (quad/HTLS)
viii. LILO of Jeerat (WB) – Subhasgram 400 kV S/c section at Rajarhat

In 4th SSCM, members agreed the following:

- *Deletion of Medinipur-Haldia NIZ 400kV D/C line along with associated bays at Medinipur from the scope of ERSS-XVIII,*
- *Construction of GIS line bays at Jeerat (WBSETCL) for termination of Jeerat (New)-Jeerat (WBSETCL) 400 kV D/C line in view of space constraints at Jeerat (WBSETCL).*
- *Provision of one spare unit of 80 MVAr reactor at Medinipur and Jeerat New end of Ranchi- Medinipur 765 kV D/C line and Medinipur - Jeerat (New) 765kV D/c line,*

WBSETCL informed that the data of load growth has been submitted after the finalization of 19th EPS.

BSPTCL informed that the data of future load growth has been submitted to CEA.

3.0: Ranchi (New) – Purulia PSP 400kV D/c line under ERSS-VII

Ranchi (New) – Purulia PSP 400kV D/c line under ERSS-VII is being implemented through TBCB by M/s Purulia Kharagpur Transmission Company Ltd. (PKTCL) (a subsidiary of M/s Sterlite Grid). The line was approved for termination at GIS switchyard of Purulia PSP. However, WBSETCL informed that there are space constraints at Purulia PSP generation switchyard. WBSETCL also informed that they are establishing New Purulia 400 kV GIS near Purulia PSP generation project by LILO of one circuit of Purulia PSP-Arambagh 400 kV D/C line and has proposed to PKTCL to terminate the line at New Purulia GIS substation instead of earlier approved Purulia PSP generation switchyard. 400 kV line bays for termination of the line at both ends are under the scope POWERGRID. The change in location of the termination point at Purulia end has already been agreed in a meeting taken by Member (PS), CEA on 25-6-2015.

Here, it is also to mention that line bays at New Purulia and Kharagpur substations are being implemented by WBSETCL as consultancy work of POWERGRID. The awarded cost of 2 nos. AIS line bays at Kharagpur is about Rs. 10 crore, whereas the awarded cost of 2 nos. GIS line bays at New Purulia is about Rs. 35 crore.

Further, in a meeting taken by Member (PS), CEA on 29-3-2016, WBSETCL informed that New Purulia GIS is expected to be commissioned by Nov., 2016. M/s Sterlite informed that the Ranchi-New Purulia 400 kV D/C line will be completed by May, 2016. In view of above, Ranchi-New Purulia 400 kV D/C cannot be charged because of want of 2 no. 400 kV GIS bays at New Purulia GIS. In order that the line does not remain unutilised for about six

months or till the New Purulia GIS is commissioned, it was agreed that as an interim arrangement, Ranchi-New Purulia 400 kV D/C line will be connected with one circuit of Purulia PSP-Arambagh 400 kV D/C line at suitable location, so as to form Ranchi- Purulia PSP (about 115 km), Ranchi-Arambagh (about 327 km) and Purulia PSP-Arambagh 400 kV lines. This interim arrangement would be implemented by M/s Sterlite. M/s PKTCL may approach CERC for revision of tariff for the additional cost, if any, incurred.

In the above meeting, it was also informed that another line under ERSS-VII being implemented by M/s PKTCL i.e. Kharagpur (WB)-Chaibasa (PG) 400 kV D/C line is ready and the bays under the scope of POWERGRID at Kharagpur (WB) implemented by WBSETCL as deposit work are not ready. In order to avoid stranding of Kharagpur (WB)-Chaibasa (PG) 400 kV D/C line till the bays at Kharagpur (WB) are commissioned, termination of the line by LILO of one circuit of Kharagpur-Kolaghat 400 kV D/c line at Kharagpur end so as to form Kharagpur (WB)-Chaibasa (PG), Chaibasa (PG)-Kologhat and Kharagpur-Kolaghat 400 kV lines as an interim arrangement was also agreed in the meeting. This interim arrangement would be implemented by M/s PKTCL with no addition cost to be recovered as tariff, was also agreed in the meeting.
The decisions of the meeting are given below:

a) PGCIL shall submit following studies:

i. Line charging studies indicating that the Ranchi – Arambagh circuit (317 km) can be charged without any constraints. However, if there are any constraints / conditions for charging, the same may be specified upfront in the studies.
ii. DOV studies indicating that the dynamic over voltage remains within specified limit (i.e. 1.4 pu) during load throw-off. The studies may also indicate the loading assumed on the line prior to load throw-off and the maximum load throw-off admissible for the DOVs. (The lines in these studies is a combination of Ranchi-Purulia and Ranchi-Purulia-Arambag and accordingly all the three nodes i.e Ranchi, Purulia and Arambag would need to be represented while carrying out DOV studies)
iii. It is understood that the line reactors (i.e. 50MVAr) at Ranchi end of this line do not have NGR. So, POWERGRID may also indicate that there would not be any problem during auto reclosing under single line to ground fault without the NGR.

b) M/s PKTCL would terminate their Ranchi-Purulia PSP 400 kV D/C line at New Purulia GIS of WBSETCL. This change in transmission scope would be finalised in the next meeting of SCPSPER and would got noted in the next Empowered committee meeting on Transmission.

c) In view of anticipated delay in commissioning of New Purulia 400 kV GIS by WBSETCL, M/s Sterlite Grid (PKTCL) may connect Ranchi-New Purulia 400 kV D/C line at a suitable location by LILO of one circuit of Purulia-Arambagh D/C line of WBSETCL as an interim arrangement till the commissioning of 2 no. 400 kV GIS bays at New Purulia. Based on the studies furnished by PGCIL (as mentioned above), the interim arrangement would also be formalized in the next meeting of SCPSPER and would got noted in the next meeting of the Empowered Committee on Transmission.

Regarding recovery of additional cost, if any, due to these changes, PKTCL may take up with CERC.

d) WBSEDCL and WBSETCL would submit SLD and general arrangement (GA) layout of the Purulia PSP and Arambag S/S respectively to CEA through E-mail.

e) PKTCL would interconnect their Kharagpur (WB)-Chiabasa (PG) 400 kV D/C line by LILO one circuit of Kharagpur (WB)-Kolaghat 400 kV D/C line near Kharagpur end as an interim arrangement till the 400 kV bays at Kharagpur (WB) are commissioned with no additional cost to be recovered as tariff. The interim arrangement would be formalized in next meeting of SCPSPER.

f) WBSETCL would furnish the load flow/system studies results in respect of New Purulia 400 kV s/s and associated transmission line to CEA, urgently, so that same could be taken in the forthcoming meeting of the SCPSP ER.

g) PKTCL will provide tower location and route alignments near the Purulia PSP and New Purulia for the (i) original Ranchi-Purulia PSP line (ii) re-alignment to New Purulia and (iii) alignment for terminating LILO in the Purulia PSP-Arambag line.

In 4th SSCM, after detailed deliberation, members agreed the following:

- *Termination of Ranchi (New) – Purulia PSP 400kV D/c line to New Purulia instead of Purulia PSP by M/s PKTCL,*
- *2 no. 400 kV GIS line bays at New Purulia in place of Purulia PSP for termination of Ranchi (New) – New Purulia 400kV D/c line by POWERGRID.*
- *WBSETCl will establish 400KV GIS at New Purulia by LILO of 400KV Purulia-Arambag 400 KV D/C line at New Purulia.*

WBSETCL informed that New Purulia GIS is expected to be commissioned by Nov., 2016.

It was informed that the Ranchi-New Purulia 400 kV D/C line will be completed by May, 2016. In view of above till the commissioning of 400 kV bays at New Purulia GIS, Ranchi-New Purulia 400 kV D/C line will be terminated at a suitable location by LILO of one circuit of Purulia-Arambagh D/C line of WBSETCL as an interim arrangement.

Further it was informed that Kharagpur (WB)-Chaibasa (PG) 400 kV D/C line is ready and the bays at Kharagpur (WB), under the scope of POWERGRID implemented by WBSETCL as deposit work are not ready. Therefore as an interim arrangement. Kharagpur (WB)-Chaibasa (PG) 400 kV D/C will be terminated by LILO of one circuit of Kharagpur-Kolaghat 400 kV D/c line at Kharagpur end so as to form Kharagpur (WB)-Chaibasa (PG), Chaibasa (PG)-Kologhat and Kharagpur-Kolaghat 400 kV lines.

Both the above mentioned interim arrangements will be executed subject to clarification from CERC in the context of 4th Amendment of IEGC Grid Code which states under clause 6.3A as given below:

Quote

" 4. Date of commercial operation in relation to an inter-State Transmission System or an element thereof shall mean the date declared by the transmission licensee from 0000 hour of which an element of the transmission system is in regular service after successful trial operation for transmitting electricity and communication signal from the sending end to the receiving end:

Provided that:
……..

(i) In case of inter-State Transmission System executed through Tariff Based Competitive Bidding, the transmission licensee shall declare COD of the ISTS in accordance with the provisions of the Transmission Service Agreement.
(ii)……
(iii)……
(iv) In case a transmission system or an element thereof is prevented from regular service on or before the Scheduled COD for reasons not attributable to the transmission licensee or its supplier or its contractors but is on account of the delay in commissioning of the concerned generating station or in commissioning of the upstream or downstream transmission system of other transmission licensee, the transmission licensee shall approach the Commission through an appropriate application for approval of the date of commercial operation of such transmission system or an element thereof."
……..…

Unquote

Concerned executors were requested to file petition before CERC for the purpose.

4.0: Common Transmission System for Phase-II generation project in Odisha

POWERGRID has informed that following transmission system to be implemented by POWERGRID was agreed in earlier SCMs, as a part of common transmission system for phase-II generation projects in Odisha:

(a) Addition of 2x1500MVA, 765/400kV ICTs with associated bays at Jharsuguda (Sundargarh)
(b) Addition of 2x1500MVA, 765/400kV ICTs with associated bays at Angul
(c) Split bus arrangement at 400 kV and 765 kV bus at both Angul and Jharsuguda (Sundargarh) substations [in GIS at Jharsuguda (Sundargarh)]
(d) LILO of both circuits of Rourkela - Raigarh 400kV D/c (2nd line) at Jharsuguda (Sundargarh) substation with associated line bays in GIS at Jharsuguda (Sundargarh) substation

During walk over survey for LILO of both circuits of Rourkela - Raigarh 400kV D/c (2nd line) at Jharsuguda (Sundargarh) S/s, severe RoW constraints have been observed due to large number of 400kV and 765kV lines being terminated at Jharsuguda. Additionally, forest involvement has also been envisaged. Accordingly, for the said LILO, about 17km of Multi-Circuit portion has been envisaged in the corridor.

In 4th SSCM, members agreed the following:

- *LILO of both circuits of Rourkela – Raigarh 400kV D/c (2nd line) at Jharsuguda (Sundargarh) on multi-circuit tower for about 17km along with associated line bays in GIS at Jharsuguda.*
- *Implementation of associated bays at 400 kV and 765 kV levels in GIS for 2x1500MVA, 765/400kV ICTs at Jharsuguda S/s*
- *Members did not agree for keeping additional Spare single phase transformer unit (765/400kV, 500MVA) at Angul and Jharsuguda substations for 2x1500MVA ICTs.*

5.0: Eastern Region System strengthening Scheme – XVII (ERSS-XVII)

ERSS-XVII scheme was approved in the 17th standing committee meeting of ER held on 25th May 2015 with following scope of works:

(i) Augmentation of transformation capacity at POWERGRID substations:

(a) Installation of 3rd 400/220 kV, 1x315 MVA ICT at Durgapur Substation
(b) Replacement of 400/220 kV, 2x315MVA ICTs at Malda Substation with 400/220kV, 2x500 MVA ICTs
(c) Installation of 3rd 400/220 kV, 1x315MVA ICT at New Siliguri Substation
(d) Replacement of 400/220 kV, 2x315MVA ICTs at Jeypore
(e) Substation with 400/220 kV, 2x500MVA ICTs
(f) Replacement of 400/220 kV, 2x315MVA ICTs at Rourkela Substation with 400/220 kV, 2x500MVA ICTs
(g) Installation of 400/220 kV, 1x500 MVA ICT at Gaya Substation

Note: Out of 6 ICTs of 315MVA released after replacement at Malda, Jeypore and Rourkela substations, one each to be used for installation at Durgapur and New Siliguri substations. The other 4 would be utilized as regional spare. In case of space constraint GIS bays may be used wherever required.

(ii) Conversion of fixed line reactors to switchable Line reactor

(a) Lakhisarai – Biharsharif 400kV D/c: 50MVAr fixed line reactor at Biharsharif end to be converted to switchable line reactor
(b) Keonjhar – Rengali 400kV S/c: 63MVAr fixed line reactor at Rengali end to be converted to switchable line reactor

(iii) Additional scope of work at under construction 400/220kV Daltonganj (POWERGRID) substation (being implemented under ERSS-III)

(a) Creation of 132kV level at Daltonganj (POWERGRID) substation along with 2x160MVA, 220/132kV ICT and associated ICT bays
(b) 4 nos. of 132 kV line bays

(iv) Reconductoring of Maithon RB - Maithon 400kV D/c line

The existing Twin ACSR Moose line needs to be reconductored with Twin HTLS conductor of ampacity equivalent to that of Quad ACSR Moose: 4 x 798A (for 45°C ambient temperature and 85°C maximum conductor temperature)

(v) Bypassing arrangement of LILO of 400kV lines at Angul

LILO of Meramundali – Bolangir/Jeypore 400kV S/c line and LILO of one circuit of Talcher – Meramundali 400 kV D/c line has been done at Angul 765/400kV substation. It was proposed to establish a switching arrangement at Angul substation such that, the above 400kV LILOs may be operated either by-passing Angul substation or terminating at Angul sub-station as and when required depending upon the power flow condition.

The final scope of works for two parts of ERSS-XVII scheme shall be as follows:

- ERSS-XVII (Part-A)

(i) 2x160MVA, 220/132kV ICT along with associated bays at Daltonganj sub-station
(ii) 4 nos. of 132 kV line bays

- ERSS-XVII (Part-B)

(i) Augmentation of transformation capacity at POWERGRID substations:

(a) Installation of 400/220 kV, 1x500 MVA ICT at Gaya S/s (400kV bay in AIS and 220kV bay in GIS)
(b) Replacement of 400/220kV, 2x315MVA ICTs at Malda S/s with 400/220kV, 2x500 MVA ICTs
(c) Installation of 3rd 400/220kV, 1x315MVA ICT at New Siliguri S/s: to be sourced from pool of spare ICTs (400kV bay in GIS and 220kV bay in AIS)
(d) Installation of 3rd 400/220kV, 1x315 MVA ICT at Durgapur S/s: to be sourced from pool of spare ICTs
(e) Installation of 400/220kV, 2x315MVA ICTs at Jeypore S/s (one each in parallel to the existing ICTs): to be sourced from pool of spare ICTs
(f) Installation of 400/220kV, 2x315MVA ICTs at Rourkela S/s (one each in parallel to the existing ICTs): to be sourced from pool of spare ICTs

Note: For elements from (c) to (f) above, sourcing of old ICTs from pool of spare ICTs shall be as given below.

New location for installation of old	Source Location of Old ICT
New Siliguri (ICT-3)	Malda (ICT-3)
Durgapur (ICT-3)	Purnea (ICT-2)
Jeypore (ICT-3)	Patna (ICT-2)

Jeypore (ICT-4)	Sasaram (ICT-2)
Rourkela (ICT-3)	Ballabhgarh (ICT-1)
Rourkela (ICT-4)	Mandola (ICT-4)

(ii) Conversion of 63MVAr fixed line reactor at Rengali end of Keonjhar – Rengali 400kV S/c line to bus reactor

(iii) Reconductoring of Maithon RB - Maithon 400kV D/c line

The existing Twin ACSR Moose line needs to be reconductored with Twin HTLS conductor of ampacity equivalent to that of Quad ACSR Moose: 4 x 798A (for 45°C ambient temperature and 85°C maximum conductor temperature)

(iv) Bypassing arrangement of LILO of 400kV lines at Angul

LILO of Meramundali – Bolangir/Jeypore 400kV S/c line and LILO of one circuit of Talcher – Meramundali 400 kV D/c line has been done at Angul 765/400kV substation. It was proposed to establish a switching arrangement at Angul substation such that, the above 400kV LILOs may be operated either by-passing Angul substation or terminating at Angul sub-station as and when required depending upon the power flow condition.

In 4th SSCM, the followings were deliberated:

(i) Members agreed to the above proposal of ICT augmentation. However, Powergrid/CTU was advised to explore for space availability for two additional bays at 400 kV Jeypore and Rourkela S/s for augmentation of ICTs.
(ii) ERLDC expressed that the 63 MVAr line reactor of Keonjhar – Rengali 400kV S/c may be kept as fixed reactor at Rengali end.
(iii) Reconductoring of Maithon RB - Maithon 400kV D/c line was agreed.
(iv) CEA/CTU was advised to explain the by-passing arrangement of *LILO* of 400kV lines at Angul *with SLD/ schematic diagram during SCM meeting and was further requested to implement the scheme at the earliest.*

6.0: Installation of 400/220kV, 500MVA (4th) ICT at Biharsharif

POWERGRID has informed that the peak loading on 400/220kV, 3x315MVA ICTs at Biharsharif S/s has been constantly observed in the range of about 700-750MW in recent times. Further, bus split at Biharsharif is also under advance stage of implementation. Subsequent to bus splitting, one section would have only one ICT. Thus, keeping in view the loading of ICTs and the requirement of meeting the N-1 security criteria, it is proposed to install 400/220kV, 500MVA ICT at Biharsharif S/s in the bus section having one 315MVA ICT

In 4th SSCM, members agreed to the proposal.

Members requsted CEA/CTU to share the study results of the bus splitting arrangement at Maithon, Durgapur, Kahalgaon and Biharsharif with fault calculations.

BSPTCL expressed that in view of up-gradatiiion of 220 kV Biharshariff-Tenughat S/C line into 400 kV line and load growth of Bihar, there may be requirement of additional augmentation of 400/220 kV ICTs at Biharshariff S/s to fulfill the (n-1) criterion and requested CEA/CTU to look into the matter.

On query, JUSNL informed that the upgradation of 220 kV Biharshariff-Tenughat S/C into 400 kV line is under execution by Powergrid and will be completed after the clearance of payment. JUSNL assured release of payment within a week.

7.0: Standardisation of OPGW in lieu of One Earth wire in all Transmission lines

The Power System requirement for Communication is increasing multi fold due to:

(a) Special Protection Scheme
(b) Ever increasing data reporting to Load Dispatch Centre
(c) Phasor measurements based data collection and reporting
(d) Remote monitoring/operation of sub-station/elements
(e) Differential protection on Lines

The practice of putting fibre in select lines leads to situation where station connectivity is held up due to identified line delay, LILO of under construction line etc.

OPGW installation on existing lines is taking long time/delayed due to shut down, ROW issues as well as capacity constraints of executing agencies.

It is proposed to include one 24 Fibre (OPGW) in all transmission lines which will ensure availability of wideband Communication from all substations to cater bandwidth for various power system application for which communication equipment (SDH– STM-16) shall be provided at all upcoming substations.

In 4th SSCM, Members accepted the importance of the scheme but it was emerged that there will be fund constraints for implementation of the above.

CEA advised all the constituents to prepare the list of such lines and approach for PSDF funding as communication system is of utmost importance.

8.0: Downstream 220kV or 132kV system development by STUs from the various commissioned and on-going ISTS substations

Under the ERSS-III scheme, following new 400kV substations have been / are being implemented by POWERGRID:

- 2x200 MVA, 400/132kV S/s at Lakhisarai and Banka in Bihar
- 2x315 MVA, 400/220kV S/s at Chaibasa in Jharkhand
- 2x315MVA+2x160MVA, 400/220/132kV S/s at Daltonganj in

Jharkhand

- 2x315 MVA, 400/220kV S/s at Bolangir & Keonjhar and 2x500 MVA, 400/220kV S/s at Pandiabil in Odisha

The substations at Lakhisarai, Banka, Chaibasa, Bolangir and Keonjhar have been commissioned and that at Pandiabil is expected to be commissioned shortly. Daltonganj S/s is expected by Mar'17. Following downlinking network along with expected commissioning schedule was informed by STUs in the previous meeting(s):

Additionally, Bihar and West Bengal may indicate status of downlinking network from following under construction ISTS substations:

(a) Kishanganj: 2x500MVA, 400/220kV – Bihar
  (i) Kishanganj (POWERGRID) – Kishanganj (BSPTCL) 220kV 2xD/c

(b) Darbhanga: 2x500MVA, 400/220kV – Bihar
  (i) Darbhanga (ISTS) – Darbhanga (BSPTCL) 220kV D/c
  (ii) Darbhanga (ISTS) – Motipur 220kV D/c
  (iii) Darbhanga (ISTS) – Samastipur New 220kV D/c (S/c strung)
  (iv) Darbhanga (ISTS) – Laukhi (earlier Supaul New) 220kV D/c

(c) Motihari: 2x200MVA, 400/132kV – Bihar
  (i) Motihari (ISTS) – Motihari (BSPTCL) 132kV D/c
  (ii) Motihari (ISTS) – Betiah 132kV D/c
  (iii) Motihari (ISTS) – Raxaul 132kV D/c

(d) Alipurduar: 2x315MVA, 400/220kV – West Bengal

  (i) Alipurduar (POWERGRID) – Alipurduar (State) 220kV D/c

States may also indicate the planned downlinking network from following under construction substations:

(a) Rajarhat 400/220kV S/s – West Bengal
(b) Dhanbad 400/220kV S/s – Jharkhand

In 4th SSCM, followings were updated:

BSPTCL updated the list as follows:

Sl. No.	Name of the transmission line	Completion schedule
1.	**2x200 MVA, 400/132 kV Banka sub-station**	
a.	LILO of 1st circuit of Banka (BSPTCL)-Sabour (BSPTCL) 132 kV D/C line at Banka (PG)	Charged.
b.	LILO of 2nd circuit of Banka (BSPTCL)-Sabour (BSPTCL) 132 kV D/C line at Banka (PG)	***Line & bays completed. Powergrid to terminate the line.***

c.	132 kV Banka (PG)-Sultanganj (BSPTCL) line-I	Completed
d.	132 kV Banka (PG)-Sultanganj (BSPTCL) line-II	Completed
2.	**The 2x200 MVA, 400/132 kV Lakhisarai sub-station**	
a.	132kV Lakhisarai(PG)-Lakhisarai(BSPTCL)D/C line	Charged
b.	132 kV Lakhisarai-Jamui (BSPTCL) D/C line	*Charged on 05.10.2015*

OPTCL updated the list as follows:

Sl. No.	Name of the transmission line	Completion schedule
1.	**2x315MVA 400/220kV Bolangir S/s**	
a.	LILO of one circuit of Sadeipalli-Kesinga220 kV D/C line at Bolangir S/S	Only 7 towers left (Severe ROW problem). By Dec, 2016.
b.	LILO of one circuit of Katapalli-Sadeipalli220 kV D/C line at Bolangir S/S	**Charged on 04.05.16**
2.	**400/220 kV Keonjhar S/S**	
a.	Keonjhar (PG)-Keonjhar (OPTCL) 220 kV D/C line	By 2017.
b.	Keonjhar (PG)-Turumunga(OPTCL) 220kV D/C line	By 2019.
3.	**400/220kV Pandiabil Grid S/s: Expected by June'16**	
a.	Pratapsasan(OPTCL)-Pandiabil (PG) 220 kV D/C line	Dec, 2017.
b.	LILO of one circuit of Atri-Puri (Samangara) 220 kV D/C line at Pandiabil (PG)	**September, 2016**

JUSNL updated the list as follows:

Sl. No.	Name of the transmission line	Completion schedule
1.	**Chaibasa 400/220kV S/s**	
a.	Chaibasa (POWERGRID) – Chaibasa (JUSNL) 220kV D/c	Completed.
b.	Chaibasa (POWERGRID) – Ramchandrapur (JUSNL) 220kV D/c	**September, 2016**
2.	**Daltonganj 400/220/132kV S/s: Expected by Mar'17**	
a.	Daltonganj (POWERGRID) – Latehar 220kV D/c	By 2017.
b.	Daltonganj (POWERGRID) – Garhwa 220kV D/c	**Matching with S/s**
c	Daltonganj (POWERGRID) – Daltonganj (JUSNL) 132kV D/c	**Matching with S/s**
d	Daltonganj (POWERGRID) – Chatarpur/Lesliganj 132kV D/c	**Matching with S/s**
3.	**Dhanbad 400/220 kV S/s: Awarded under TBCB**	
a.	Dhanbad – Dhanbad (Govindpur) (JUSNL) 220kV D/c	**Matching with S/s**

On query, Powergrid informed that 220 kV bays at 2x500MVA, 400/220kV Kishanganj S/s are

expected by June-2016.

BSPTCL informed that all the down linking lines of 2x500MVA, 400/220kV Kishanganj & Darbhanga S/s and 2x200MVA, 400/132kV Motihari S/s were matching with the commissioning of Sub-stations and BSPTCL will be able to draw power from day one of the commissioning.

WBSETCL updated that

Sl. No.	Name of the transmission line	Completion schedule
1.	**2x315MVA, 400/220kV Alipurduar sub-station**	
a.	Alipurduar (POWERGRID) – Alipurduar (WBSETCL) 220kV D/c (HTLS)	December, 2016.
2.	**2x500MVA, 400/220kV Rajarhat West Bengal S/S- Expected by Oct, 2016**	
a.	Rajarhat-N. Town-3 (WBSETCL) 220 kV D/C line	Matching
b.	Rajarhat-N. Town-2 (WBSETCL) 220 kV D/C line	*June, 2018*
c.	Rajarhat- Barasat (WBSETCL) 220 kV D/C line	*June, 2018*

9.0: 2 nos. 400kV line bays at Muzaffarpur for Muzaffarpur – Dhalkebar 400kV D/c line

The interconnection between India and Nepal through Muzaffarpur – Dhalkebar (Nepal) 400kV D/c (to be initially operated at 220kV) line has been recently commissioned and is being operated at 132 kV, due to delay in implementation of 220 kV S/S at Dhalkebar (Nepal. In the 2nd Joint Steering Committee meeting on India-Nepal Cooperation in Power Sector held on 29th Jan 2016 at Kathmandu, Nepal, it was decided to operate the line at 220kV level by Oct 2016 and at rated voltage level of 400kV by Dec 2017. To operate the line at 400kV, 2 nos. 400kV line bays shall be required at Muzaffarpur 400/220kV S/s and 400/220kV substation needs to be established at Dhalkebar (Nepal).

Accordingly, it is proposed to construct 2 nos. 400kV line bays at Muzaffarpur substation of POWERGRID for operation of Muzaffarpur – Dhalkebar 400kV D/c line (presently operated at 132kV) at its rated voltage level of 400kV. These line bays are proposed to be constructed by POWERGRID as part of ISTS.

In 4th SSCM, CTU clarified that the proposed 400 kV bays at Muzaffarpur (PG) will be constructed by Powergrid on payment basis with funding by Nepal.

BSPTCL requested that on relinquishment of 220 kV bays after the commissioning of the Muzaffarpur – Dhalkebar 400kV D/c line, the same may be allotted to BSPTCL for drawing power from Muzaffarpur (PG) S/s.

Members agreed.

10.0: Re-conductoring of Rangpo – New Siliguri 400kV D/c (Twin Moose) line and new 220/132kV, 100MVA (4th) ICT at Rangpo

POWERGRID has informed that power from following generation project in Sikkim, is to be evacuated from Rangpo:

Sl. No.	Generation Project	Unit size (in MW)	Installed Capacity (in MW)	Pooling Point
Phase – 1				
1	Teesta Urja Ltd. / PTC (Teesta-III)	6x200	1200	Rangpo
2	Lanco Energy Pvt. Ltd. (Teesta-VI)	4x125	500	Rangpo
3	DANS Energy Pvt. Ltd. (Jorethang)	2x48	96	New Melli
4	JAL Power Corporation (Rangit-IV)	3x40	120	New Melli
5	Madhya Bharat Power Corporation Ltd. (Rongnichu)	2x48	96	Rangpo
6	Gati Infrastructure Ltd (Chuzachen)	2x49.5	99	Rangpo
7	Gati Infrastructure Bhasmey Power Pvt. Ltd. (Bhasmey)	2x25.5	51	Rangpo
		Sub-Total	2162	
Phase-2				
8	Shiga Energy Pvt. Ltd. (Tashiding)	2x48.5	97	Legship Pool
9	Sneha Kinetic Power Projects Ltd. (Dickchu)	2x 48	96	Dikchu Pool
10	Panan Himagiri Hydro Energy Ltd.	4x 75	300	Mangan
		Sub-Total	493	
Others				
11	Sikkim Hydro Power Ventures Ltd. (Rangit-II)	2x33	66	Legship Pool
Existing				
12	Teesta-V (NHPC)	3x170	510	Rangpo
		Total	3231	

Following transmission system is existing / under construction for power evacuation from above projects:

(a) Legship Pool – New Melli 220kV D/c

(b) New Melli – Rangpo 220kV D/c

(c) Dikchu Pool – Samardong – Rangpo 220kV D/c

(d) Rangpo – Siliguri 400kV D/c (Twin)
(Formed after LILO of Teesta-V – Siliguri 400kV D/c at Rangpo)

(e) Rangpo – Kishanganj 400kV D/c (Quad)
(Formed after LILO of Teest-III – Kishanganj 400kV (Quad) D/c at Rangpo)

Initially power from only two generation projects – Chuzachen and Bhasmey (total about 150MW) was planned to be pooled at Rangpo 132kV level and accordingly 3x100MVA was planned (considering N-1 security). Now, in view of modification in Sikkim Comprehensive scheme (of Govt. of Sikkim), power from Dikchu HEP will also be pooled at Rangpo at 132kV level.

In view of the above, about 250MW power from three generation projects viz. Chuzachen, Bhasmey and Dikchu would be injected at 132kV level at Rangpo S/s. In case of outage of one 220/132kV ICT at Rangpo during off-peak condition when drawl by Sikkim at Gangtok S/s is very less, the other two ICTs would get overloaded. Therefore, it is proposed to install new 220/132kV, 100MVA ICT at Rangpo.

In 4th SSCM, members agreed the following:

- *Reconductoring of Rangpo – Siliguri 400kV D/c Twin Moose line with Twin HTLS conductor along with suitable modification in line bay equipment at both ends*
- *Installation of 4th 220/132kV, 100MVA ICT at Rangpo S/s*

11.0: Replacement of 220/132kV, 1x50MVA ICT at Malda with 220/132kV, 200MVA ICT

POWERGRID has informed that at present, there are 220/132kV, 2x160MVA+1x50MVA ICTs at Malda S/s. During the last summer, a peak demand to the tune of 270MVA was observed against an installed transformation capacity of 370MVA. It may be noted that 50MVA ICT is getting heavily loaded during summer and tripping of any 220/132kV ICT would lead to cascaded tripping. Further, it may be noted that the existing 50MVA ICT is more than 20 years old. In view of the above, it is proposed to replace the existing 50MVA, 200/132 kV ICT at with new 200MVA, 220/132 kV ICT at Malda S/s.

In 4th SSCM, WBSETCL informed that a new 220kV Gajol S/s is being commissioned nearby Malda which will offload Malda S/s. The award of Gazol S/s is expected by Dec, 2016.

As the proposed replacement of ICT will take 2-3 years and 220kV Malda S/s is getting critically loaded, WBSETCL requested the following:

- *WBSETCL will lend a 400/220 kV 160 MVA ICT to Powergrid for replacing the existing 220/132 kV 50 MVA ICT at 220kV Malda (PG) S/s.*
- *The cost of replacement as well as allied equipment as per requirement, will be*

bourne by WBSETCL for the arrangement.

- *It will be a temporary arrangement till the commissioning of the proposed ICT.*

Members agreed to the following:

- *Replacement of the existing 50MVA, 200/132 kV ICT with new 160MVA, 220/132 kV ICT at Malda S/s.*
- *The temporary arrangement as requested by WBSETCL to meet the demand of Malda till the commissioning of new 160 MVA ICT.*

12.0: Installation of 420kV, 1x125MVAR bus reactor at Subhasgram S/s of POWERGRID

POWERGRID has informed that in the recent past, high voltage (upto 430kV) has been observed at Subhasgram sub-station of POWERGRID. This has at times led to over voltage tripping of lines. Presently, there is no bus reactor at Subhasgram S/s and there is only one 50MVAR line reactor at Subhasgram end of Sagardighi – Subhasgram 400kV S/c line. Accordingly, it is proposed to install 1x125MVAR bus reactor at Subhasgram S/s of POWERGRID for better voltage management.

In 4th SSCM, ERLDC informed that presently the voltage profile of Subhasgram S/s is improving and Bus reactor may be required in future to control the voltage.

WBSLDC expressed that at this juncture there is no requirement of Bus reactor at Subhasgram S/s. Moreover, study needs to be carried out for the exact capacity of Reactor.

13.0: Modification in "Transfer of power from generation projects in Sikkim to NR/WR scheme (HCPTC-3)" for Phase-1 IPPs in Sikkim

POWERGRID has informed that the LILO of both circuits of Teesta-III – Kishanganj 400kV D/c at Rangpo was agreed as a part of transmission system associated with Sikkim Phase-I generation projects and the LILO lines i.e. 400kV 2xD/C are under construction. One 400kV D/c LILO line is expected to be commissioned shortly; however, the 2nd 400kV D/c LILO line has got delayed due to forest clearance issues. About 8km stretch of the 2nd LILO line involves Tandong Reserve forest. The matter was discussed in the 17th meeting of Standing Committee on Power System Planning in Eastern Region held on 25-05-2015 wherein POWERGRID informed that the 2nd 400 kV D/c LILO section is likely be completed by March, 2017.

POWERGRID site officials have indicated that obtaining forest clearance for 2nd 400kV D/c LILO may take substantial time and it may not be feasible to construct the same in near future.

In 4th SSCM, members expressed that the 2nd LILO is also very much required for evacuation of Teesta-III (6x200 MW) power. Therefore, Powergrid was advised to explore for alternate ROW, if forest cleranece issue were not resolved for completion of 2nd LILO to complete the scheme.

14.0: Consideration of 400kV lines/line segments owned and maintained by DVC as ISTS lines

DVC vide letter dated 26.05.2016 informed that the following 400kV lines/line segments carrying inter-state power are owned and maintained by DVC:

1. RTPS-Ranchi(PG) line
2. DSTPS-RTPS line
3. LILO part (10.5 km) upto RTPS of Ranchi (PG)-Maithon (PG)
4. Termination segment (3.5 km) at DSTPS of the Jamshedpur(PG) line

The lines under sl no. 1 shall be carrying inter-state power being directly connected with CTU, where id the lines under sl no. 3 & 4 are already a part of ISTS lines transmitting inter-state power being owned and maintained by CTU.

In case of lines under sl no. 2, the power flow through the RTPS-Ranchi(PG) line will be entirely of inter-state nature (natural power flow is from Ranchi(PG) to RTPS) in absence of any generation at RTPS and DSTPS, and even if DSTPS generation is considered, no power evacuation occurs through RTPS-Ranchi(PG).

In view of above, DVC requested for declaration of above 400kV lines/line-segments as ISTS lines.

In 4th SSCM, Committee advised DVC to apply to ERLDC/ERPC for identification of non-ISTS lines carrying ISTS power for further course of action.

Regarding maintenance of LILO portions as given below, members felt that the these sections should be maintained by Powergrid in line with the decision of 17th SCM for maintenance of LILO of Farakka-Subhasgram at Sagardighi TPS under item no. 27.

1) LILO of Ranchi (PG)-Maithon (PG) at RTPS (10.5 km)
2) Termination segment of the Jamshedpur(PG)-Maithon (PG) line at DSTPS (3.5 km)

15.0: Establishment of 400/220/132kV Grid Sub-stations at potential load centres in Bihar – Agenda from BSPTCL

Chief Engineer (Transmission) BSPTCL vide letter dated 19-4-2016 has informed that CEA vide letter no. 69/1/2012-SP&PA-1203-05 dated 15-11- 2012 has agreed Transmission System requirement of Bihar for the 12th plan in three parts. Due to better convenience, the entire works covered under Part- 2 (Phase-2) has been divided into two groups by Bihar Grid Company Ltd. (BGCL - a joint venture of BSP(H)CL and POWERGRID) under new head Phase-IV Part-I and Phase-IV Part-II. It is mentioned in the letter that the works covered under Phase-IV Part-I are under execution by BGCL. BSPTCL has forwarded the list of works covered under Phase-IV Part-I to CEA through E-mail, which is given below:

A: **Substation**

Sl. No.	Details of S/S work
01	Construction of 2x160 MVA + 2x50 MVA 220/132/33 kV new GIS S/S at Chapra
02	Construction of 2x160 MVA + 3x50 MVA, 220/132/33 kV new GIS S/S at Gaya (Manpur)
03	Construction of 2x160 MVA + 2x50 MVA, 220/132/33 kV new GIS S/S at Nawada
04	Construction of 2x160 MVA + 2x50 MVA, 220/132/33 kV new GIS S/S at Sheikhpura
05	Construction of 2x160 MVA + 2x50 MVA, 220/132/33 kV new GIS S/S at Hathidah
06	Construction of 2x160 MVA + 2x50 MVA, 220/132/33 kV new GIS S/S at Jamalpur
07	Construction of 2x160 MVA + 2x50 MVA, 220/132/33 kV new GIS S/S at Sabour

B: **LINES**

Sl. No.	**Details of transmission work**	**Line Length**
01	Chapra 220/132 kV new S/S – Chapra 132/33 kV S/S, 132 kV D/C line (Zebra conductor)	24
02	Hazipur 220/132 kV new S/S – Chapra 220/132 kV S/S, 220 kV D/C line	47
03	Chapra 220/132 kV S/S – Siwan, 132 kV D/C line	66
04	LILO of one circuit of 132 kV D/C Khagual-Digha line at Bihta	27
05	Patna (POWERGRID)-Khagaul, 220 kV D/C line	26
06	LILO of 220 kV D/C Biharsharif – Bodhgaya line at Gaya (new) (Manpur) S/S	14
07	LILO of 132 kV D/C Bodhgaya-Chandauti (ckt 3 & 4) at Gaya new (Manpur) S/S	Deleted
07.a	132KV D/C Gaya(new) – Jehanabad line	35
08	LILO of 132 kV S/C Bodhgaya-Wazirganj line at Gaya new (Manpur) S/ S	29
09	132 kV S/C (on D/C Tower) Gaya new (Manpur)-Hulasganj line	10
10	220 kV D/C (High Capacity) Gaya (POWERGRID)-Gaya new (Manpur) line	56
11	220 kV D/C (High Capacity) Nawada new-Gaya new (Manpur) line	55
12	132 kV D/C Sheikhpura(New) – Sheikhpura (Old) transmission line (High Capacity)	24
13	220 kV D/C Sheikhpura (New) – Nawada (New) transmission line (High Capacity)	51
14	220 kV D/C (High Capacity) Jamalpur new-Sheikhpura (New) transmission line	125

15	132 kV S/C (on D/C tower) Sheikhpura new – Biharsharif transmission line	40
16	132 kV D/C Nawada (New) – Nawada 132/33 kV (High Capacity) S/S	17
17	LILO of 220 kV Begusarai-Biharsharif line at 220 kV Hathidah	30
18	132 KV D/C Hathidah (New) –Hathidah (Old) transmission line (Zebra Conductor)	8
19	LILO of 132 kV D/C (High Capacity) Sultanganj-Lakhisarai transmission line at Jamalpur	44
20	132 kV D/C Jamalpur (New) – Jamalpur (Old) transmission line (Zebra Conductor)	34
21	132 kV D/C Sabour (New) – Sabour (Old) transmission line (Zebra Conductor)	13
22	LILO of 132 kV D/C Kahalgaon-Sultanganj line at Sabour	18
23	220 kV D/C (High Capacity) Sabour (New) – Jamalpur (New) transmission line	60
	Total	852

The works covered under Phase-IV Part-II which, interalia, includes transmission system associated with establishment of 3 no. 2x500 MVA 400/220 kV sub-stations around Patna under state sector at Bihta, Fatuha and Gaighat along with downlinking 220 kV & 132 kV system has been revised due to non-availability of land at these locations. In this context, the joint studies carried out by BSPTCL and POWERGRID for the 12th plan has been revised considering new substations at Naubatpur, Bakhtiyarpur and Jakkanpur in place of Bihta, Gaighat and Fatuha respectively. The revised system proposed by BSPTCL associated with above sub-stations along with power flows and other transmission works under Phase-IV part-II are given below:

a) Naubatpur 400/220/132/33 kV GIS S/s

i) Establishment of 2x500MVA+2x160 MVA+2x80 MVA 400/220/132 kV S/S at Naubatpur
ii) LILO of circuits 3 & 4 of Patna (PG)-Balia 400 kV D/c (Quad) line at Naubatpur 400 kV 2x D/C line
iii) LILO of both circuits of Ara (PG) – Khagaul (BSPTCL) line at Naubatpur (New) 220 kV 2xD/C
iv) Naubatpur (New)-Bihta (BSPTCL) 220 kV D/C line
v) Naubatpur (New)-Bhusaula (New) 220 KV D/C Transmission line

b) Bakhtiyarpur 400/220/132 kV GIS S/s

i) Establishment of 2x500 MVA +2x160 MVA 400/220/132 kV GIS S/S at Bakhtiyarpur
ii) LILO of both circuits of Barh – Patna (PG) 400kV D/c (Quad) line-1 at Bakhtiyarpur 400 kV 2xD/C
iii) Bakhtiyarpur (New) - Sheikhpura (New) 220 kV D/C line.
iv) Bakhtiyarpur (New) - Hathidah (New) 220 kV D/C line.

v) Bakhtiyarpur (New) - Fatuha (BSPTCL) 220 kV D/C line.
vi) Bakhtiyarpur (New) - Harnaut (BSPTCL) 132 kV D/C line
vii) Bakhtiyarpur (New) - Baripahari (BSPTCL) 132 kV D/C line. viii)132 kV D/C Bakhtiyarpur (New) - Baripahari (BSPTCL) line.

c) Jakkanpur 400/220/132/33 kV GIS S/s

i) Establishment of 2x500 MVA +3x160 MVA+3x80 MVA 400/220/132/33 kV GIS S/S at Jakkanpur
ii) LILO of both circuits of Nabinagar-II – Patna (PG) 400kV D/c at Jakkanpur 400 kV 2xD/C
iii) LILO of both circuits of Sipara (BSPTCL)-Bihta (BSPTCL) line at Jakkanpur (new) 2x220 kV D/C
iv) LILO of Khagaul (BSPTCL) - Sipara (BSPTCL) 220 kV S/C line at Jakkanpur (New) 220 kV D/C
v) LILO of both circuits of Jakkanpur-Sipara line at Jakkanpur New (being re-conductored with HTLS by BSPTCL) 2x132 kV D/C
vi) LILO of 132 KV S/C Jakkanpur/Mithapur-Fatuha line at Jakkanpur New (being re-conductored with HTLS by BSPTCL) 132 kV D/C

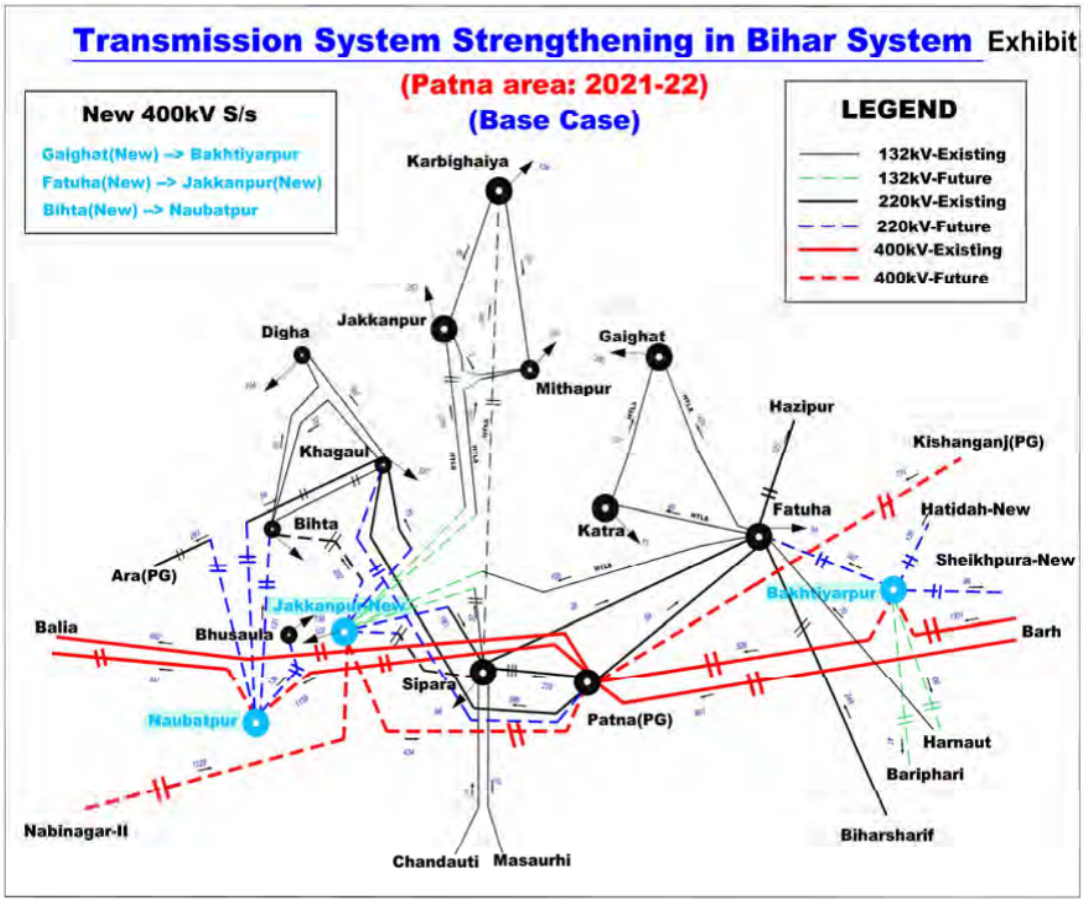
d) Bhusaula 220/33 kV GIS sub-station

i) Establishment of 2x100 MVA 220/33 kV GIS S/S at Bhusaula

e) Dumraon 220/132/33 kV GIS sub-station

i) Establishment of 2x160 MVA+2x80 MVA 220/33 kV GIS S/S at Dumraon
ii) LILO of both circuits of 220 kV Ara (PG)-Pusauli (PG) D/c line at Dumraon (New) 2x220 kV D/C
iii) Dumraon (New)- Dumraon (BSPTCL) 132 kV D/C
iv) Dumraon (New)- Buxarn (BSPTCL) 132 kV D/C
v) Dumraon (New)- Jagdishpur (BSPTCL) 132 kV D/C

f) LILO of one circuit of Purnea-Naugachia / Khagaria 132 kV D/C line at Katihar (BSPTCL) 132 kV D/C



Following are the observations of Base Case system studies of Bihar grid for 2021-22 time frame:

Observations:

Study results shows that a numbers of transmission lines and ICTs are overloaded in the following areas:

(i) West Champaran, East Champaran & Sitamarhi districts – Motihari & Sitamarhi areas
(ii) Gaya, Aurangabad, Rohtas & Bhabua districts – Gaya & Sasaram areas
(iii) Saharsa, Khagaria and Begusarai districts

Remedial measures:

(a) Establishment of three new 400kV substations have been proposed at Sitamarhi, Chandauti and Saharsa and three new 220kV substations have been proposed at Karmnasa, Motihari and Korha (near Katihar).
(b) The new three 400kV substations at Sitamarhi, Chandauti and Saharsa are proposed to be implemented as an ISTS scheme, whereas the three 220kV substations shall be implemented by BSPTCL.
(c) Snapshot of load flow study results (Base Case) of the Sitamarhi, Chandauti and Saharsa areas are shown.

The scope of works is proposed with three new ISTS substations in Bihar to meet 13th Plan

end demand of the state along with down linking system is given below:

A. To be implemented through TBCB:

(1) Sitamarhi (New) S/s

i) 400/220/132kV, 2x500MVA + 2x200MVA new S/s at Sitamarhi
ii) Darbhanga – Sitamarhi (New) 400kV D/c (Triple Snowbird) line
iii) Sitamarhi (New) – Motihari 400kV D/c (Triple Snowbird) line
iv) 2x125MVAr, 420kV bus reactors along with bays
v) 400kV Line bays: 4 nos. for above lines
vi) 220kV Line bays: 4 nos. for Sitamarhi (New) – Motipur 220kV D/c and Sitamarhi (New) – Motihari (New) 220kV D/c lines (lines to be constructed by BSPTCL)
vii) 132kV Line bays: 4 nos. for Sitamarhi (New) – Sitamarhi 132kV D/c (Single Moose) and Sitamarhi (New) – Pupri 132kV D/c lines (lines to be constructed by BSPTCL)
viii) Space for
- 400/220kV, 2x500MVA ICT along with associated bays
- 220/132kV, 2x200MVA ICTs along with associated bays
- 400kV line bays (including space for line reactor): 6 nos.
- 220kV line bays: 4 nos.
- 132kV line bays: 4 nos.

(2) Chandauti (New) S/s

i) 400/220/132kV, 3x500MVA + 3x200MVA new S/s at Chandauti
ii) LILO of both circuits of Nabinagar-II – Gaya 400kV D/c (Quad) line of POWERGRID at Chandauti (New)
iii) 2x125MVAr, 420kV bus reactors along with bays
iv) 400kV Line bays: 4 nos. for above LILO lines
v) 220kV Line bays: 4 nos. for LILO of Gaya (POWERGRID) – Sonenagar 220kV D/c at both Bodhgaya (BSPTCL) and Chandauti (New) substations, so as to form Gaya (POWERGRID) – Bodhgaya (BSPTCL) – Chandauti (New) – Sonenagar 220kV D/c line (LILO to be done by BSPTCL)
vi) 132kV Line Bays: 4 nos. for LILO of Chandauti – Rafiganj and Chandauti – Sonenagar 132kV S/c lines (LILO to be done by BSPTCL)
vii) Space for
- 400/220kV, 2x500MVA ICT along with associated bays
- 220/132kV, 2x200MVA ICTs along with associated bays
- 400kV line bays (including space for line reactor): 6 nos.
- 220kV line bays: 4 nos.
- 132kV line bays: 4 nos.

Note: Under the scope of BSPTCL

(i) Reconductoring of Chandauti – Rafiganj – Sonenagar 132kV S/c line with HTLS conductor of 240MVA (ampacity - 1050A)
(ii) LILO of Chandauti – Rafiganj 132kV S/c line at Chandauti (New)

(iii) Reconductoring of Chandauti – Sonenagar 132kV S/c line with HTLS conductor of 240MVA (ampacity - 1050A)
(iv) LILO of Chandauti – Sonenagar 132kV S/c line at Chandauti (New)

(3) Saharsa (New) S/s

i) 400/220/132kV, 2x500MVA + 2x200MVA new S/s at Saharsa
ii) LILO of Kishanganj – Patna 400kV D/c (Quad) line of POWERGRID at Saharsa (New)
iii) 2x125MVAr, 420kV bus reactors along with bays
iv) 400kV Line bays: 4 nos. for above LILO lines
v) 220kV line bays: 4 nos. for Saharsa (New) – Begusarai 220kV D/c and Saharsa (New) – Khagaria (New) 220kV D/c lines (lines to be constructed by BSPTCL)
vi) 132kV line bays: 2 nos. for Saharsa (New) – Saharsa 132kV D/c (Single Moose) line (lines to be constructed by BSPTCL)
vii) Space for
- 400/220kV, 2x500MVA ICT along with associated bays
- 220/132kV, 2x200MVA ICTs along with associated bays
- 400kV line bays (including space for line reactor): 6 nos.
- 220kV line bays: 4 nos.
- 132kV line bays: 6 nos.

(4) Installation of 400/132kV, 315MVA (3rd) ICT at Motihari substations of Essel Infra

B. To be implemented by POWERGRID:

(1) Installation of 400/132kV, 315MVA (3rd) ICT at Banka and Lakhisarai substations of POWERGRID

Bihar shall ensure completion of downstream network from the above proposed three ISTS substations in matching time-frame of the substations for better utilisation.

In 4th SSCM, members agreed to the above proposal.

16.0: Construction of Gaya (PG) – Sonenagar (new) 220 kV D/C line in Phase-3 scheme of BRGF under 12th Plan by BSPTCL

BSPTCL has submitted that 220 kV GSS at Sonenagar and 220 kV D/C line between Gaya (PG) – Sonenagar GSS is being constructed under Backward Region Grant Fund (BRGF) Phase-III. This is a part of scheme covered in 12th Plan, duly concurred by CEA and sanctioned by Planning Commission. The funding is done through grant.

Construction of 02 nos. 220 kV line bays at Gaya (PG) is proposed to be implemented by POWERGRID as ISTS work. The line and GSS work at Sonenagar are being done by BSPTCL. BSPTCL may indicate the commissioning schedule of the line, so as to implement the line bays in matching time-frame of the line

In 4th SSCM, BSPTCL informed that the two nos of 220 kV bays for Gaya (PG) – Sonenagar (new) 220 kV D/C line at Gaya (PG) were already awarded under deposit work and are in advanced stage of construction. Therefore it was informed that the proposal for construction of 02 nos. 220 kV line bays at Gaya (PG) by POWERGRID under ISTS work *would have been for other projects under BRGF scheme.*

BSPTCL was advised to check and confirm the same in the SCM meeting.

Director (Projects), BSPTCL expressed that for all the 400/220/132 kV ISTS Sub-stations there should be provision for additional four 400 kV bays (For future ICTs and lines) and eight 220 kV bays (for ICT bays and future lines) as they were facing problem in getting drawl point at Patna and Gaya (PG) S/s.

Further, it was also mentioned that the construction, operation and maintenance of future bays at ISTS sub-stations may be carried out by the owner of the Sub-station as the owner of the line faces much difficulty in maintaining those bays.

Director, CEA informed that the precedence is coming since long for maintenance of bays at the premises of other utilities. Different utilities have their different philosophy for maintenance of their bay equipments; however a uniform practice may be adopted by the utilities by arriving a consensus decision in the forum of ERPC or SCM.

17.0: Conversion of fixed line reactor at Purnea end of Kishanganj – Purnea 400kV D/c line to switchable line reactor

POWERGRID has informed that Siliguri – Purnea 400kV D/c (Quad) line is being LILO at Kishanganj S/s and the same is expected to be commissioned shortly. Presently, one circuit of Siliguri – Purnea 400kV D/c line has 63MVAr fixed line reactor at Purnea end. After LILO of the subject line at Kishanganj S/s, length of Kishanganj – Purnea section would be about 72km.

In view of the above, it is observed that the one circuit of Purnea – Kishanganj 400kV D/c (after LILO) is becoming over compensated (about 108%). Accordingly, it is proposed that the 63MVAr fixed line reactor at Purnea end in one circuit of Kishanganj – Purnea 400kV D/c (Quad) line may be converted to switchable line reactor.

In 4th SSCM, members agreed to the proposal.

18.0: Transmission system for evacuation of power from Nabinagar-II STPP (1980MW) of NTPC

POWERGRID has informed that the transmission system for evacuation of power from Nabinagar-II STPP of NTPC is being implemented by POWERGRID with following scope of works:

(a) Nabinagar-II – Gaya 400kV D/c line with Quad moose conductor
(b) Nabinagar-II – Patna 400kV D/c line with Quad moose conductor

(c) Additional 1x1500MVA, 765/400kV ICT at Gaya

POWERGRID has informed that there are corridor constraints near Nabinagar-II generation project due to thick population in the area. Accordingly, about 7km Multi-Circuit section has been considered at Nabinagar-II end for both the evacuating lines.

In view of the above, members may approve construction of 7km Multi-Circuit section for both lines viz. Nabinagar-II – Gaya 400kV D/c (Quad) and Nabinagar-II – Patna 400kV D/c (Quad) at Nabinagar-II end..

In 4th SSCM, members agreed to the proposal.

19.0: Interim connectivity to generation projects through LILO arrangement

A number of generation projects in were granted Connectivity / Long Term Access (LTA) with strengthening of transmission system. In few cases generation projects were to be commissioned ahead of the anticipated commissioning of the associated transmission system. In such cases, generation projects were given temporary connectivity through loop-in & loop-out (LILO) of nearby transmission lines so as to enable them connect with the grid and commission their generation projects. The temporary connectivity through LILO was to be withdrawn after commissioning of the associated transmission system. Associated transmission system of some of such generation projects have been commissioned and their temporary connectivity through LILO has been disconnected; however, some are still connected through LILO arrangement.

In this regard, it may be mentioned that there are number of generation projects in Eastern region connected / to be connected through temporary LILO arrangements. List of such generation projects along with anticipated time line as informed by project developers in various meetings is mentioned below:

Generation Project in ER connected through temporary LILO arrangement					
Sl. No.	**Generation Project**	**Installed Capacity (in MW)**	**Present Connectivity through LILO**	**Final Connectivity Arrangement (not**	**Anticipated Completion Schedule**
1	Sterlite Energy Ltd.	4x600	LILO of one circuit of Rourkela-Raigarh 400kV D/c line (granted in Sept'09)	Sterlite - Jharsuguda 400kV 2xD/c	July'16
2	Ind Barath Energy (Utkal) Ltd.	2x350	LILO of one circuit of Jharsuguda - Raigarh 400kV D/c line (granted in Sept'09)	Ind Barath - Jharsuguda 400kV D/c	Apr'16
3	Gati Infrastructure Ltd. (Chuzachen)	2X49.5	LILO of Rangpo - Melli 132kV S/c line (granted in Nov'07)	Chuzachen - Rangpo 132kV D/c (with Zebra conductor)	EP&D Sikkim may update status of bay

4	DANS Energy Pvt. Ltd. (Jorethang)	2x49	LILO of one circuit of Rangpo- New Melli 220kV D/c line (granted in May'15)	Jorethang - New Melli 220kV D/c	Mar'16
5	Sneha Kinetic Power Projects Pvt. Ltd. (Dikchu)	2x48	(*) LILO of one circuit of Teesta- III – Rangpo 400kV D/c line (granted in Dec'14 by CERC)	Dikchu – Dikchu Pool 132kV D/c	

In line with the direction from CERC, the above matter needs to be discussed in Standing Committee meetings and timeline for replacement of LILOs of generation developer by dedicated transmission lines along with further course of action in case of default in meeting the deadlines is to be finalised.

In 4th SSCM, the committee discussed in detail and decided the following timeline for withdrawing the LILO:

Generation Project in ER connected through temporary LILO arrangement						
Sl. No.	**Generation Project**	**Installed Capacit**	**Present Connectivity through LILO**	**Final Connectivity Arrangement**	**Target date**	**Remrks**
1	Sterlite Energy Ltd.	4x600	LILO of one circuit of Rourkela-Raigarh 400kV D/c line (granted in Sept'09)	Sterlite - Jharsuguda 400kV 2xD/c	**April'16**	***The LILO may be removed as the target date fixed by 31st & 32nd TCC/ERPC was not adhered to.***
2	Ind Barath Energy (Utkal) Ltd.	2x350	LILO of one circuit of Jharsuguda - Raigarh 400kV D/c line (granted in Sept'09)	Ind Barath - Jharsuguda 400kV D/c	**June'16**	***The LILO may be removed if the target was not adhered.***
3	Gati Infrastructure Ltd. (Chuzachen)	2X49.5	LILO of Rangpo - Melli 132kV S/c line (granted in Nov'07)	Chuzachen - Rangpo 132kV D/c (with Zebra conductor)	**EP&D Sikkim may update**	***The construction of bays at Rangpo is under the scope of Sikkim.***
4	DANS Energy Pvt. Ltd. (Jorethang)	2x49	LILO of one circuit of Rangpo- New Melli 220kV D/c line (granted in May'15)	Jorethang - New Melli 220kV D/c	**July'16**	***Expected to be completed within target date.***
5	Sneha Kinetic Power Projects Pvt. Ltd. (Dikchu)	2x48	(*) LILO of one circuit of Teesta- III – Rangpo 400kV D/c line (granted in Dec'14 by CERC)	Dikchu – Dikchu Pool 132kV D/c		***Expected to be completed in matching with generation.***

20.0: Tashiding HE Project, Sikkim: Evacuation of Power (Interim Arrangement) – Proposal of Shiga Energy Private Ltd.

Tashiding HEP in Sikkim is in advanced stage of construction and expected to be commissioned by December 2016. The power evacuation system for the project comprises of the following:

(i) Immediate Evacuation System (under scope of Gen. Developer)
- Tashiding - Legship 220kV D/c line (7km)

(ii) Common Transmission System (under scope of Govt. of Sikkim)
- Establishment of 220kV substation at Legship
- Legship - New Melli 220kV D/c with twin moose conductor

The Legship Pooling station and 220 kV D/C transmission line from Legship Pooling station to New Melli substation, with 2 number GIS bays at New Melli are being implemented by Department of Power, Govt. of Sikkim as a part of Comprehensive Scheme for strengthening of Transmission and Distribution system in Sikkim (being implemented by POWERGRID on consultancy basis).

In the meeting held in CEA with representatives from NLDC, CTU-PGCIL & Shiga Energy on 23.11.2015, it was agreed that in case of delay in Legship Pooling station, the transmission line from Tashiding HEP to Legship Pooling station and transmission line from Legship pooling station to New Melli substation may be directly connected bypassing the Legship Pooling station as an interim arrangement to ensure power evacuation.

In the above said meeting it was also agreed that POWERGRID would expedite the commissioning of 220 kV D/c line from Legship Pooling station to New Melli substation and associated GIS bays to match with the commissioning schedule of THEP (i.e. Dec., 2016). Therefore Shiga Energy has requested for taking the work related to 220 kV D/c transmission line from Legship pooling station to New Melli substation and associated 2 nos. GIS line bays at New Melli on top priority so that the power could be evacuated without any hold up.

In view of the above, members may approve interim connection of Tashiding HEP – Legship Pool and Legship Pool – New Melli 220kV D/c lines by bypassing Legship Pool substation till completion of Legship Pool S/s.

In 4th SSCM, members agreed to the proposal.

21.0: Additional 400 kV D/C line from Derang (Generation project of JITPL) to Angul Pooling Station(PG) – Proposal of JITPL

JITPL has established a 2x600 MW generating plant at Derang, Odisha. Both the units have been declared under commercial operation and power is being evacuated through Derang-Angul (PG) 400 kV D/C line. M/s JITPL had applied for 1044 MW LTOA after considering drawl of 156 MW by Odisha (GRIDCO) from bus bar of the generating switchyard as per PPA signed with Odisha. Accordingly, M/s JITPL was granted Long Term Open Access (LTOA) of 1044 MW under CERC Regulation. However, POSOCO has granted NOC for 980 MW citing congestion in the transmission system. Therefore, an NOC of 980MW combined

with the connectivity of 1044 MW instead of 1200 MW is resulting into under generation of about 220 MW by JITPL.

Further, Derang - Angul Pool 400 kV D/C line was to be designed for maximum conductor temperature of 95ºC as per the minutes of the meeting held on 8- 12-2008 and 15-12-2008 at POWERGRID office, Gurgaon regarding grant of LTOA for generation projects in advance stage in Odisha. However, the above dedicated line (Twin Moose with ACSR conductor) has been designed with maximum conductor temperature of 75ºC. Hence, in the event of N-1 contingency, the above dedicated line is not able to evacuate full power from the project

In this regard, a meeting was held in the CEA on 16.12.2015 with CEA, CTU, POSOCO & JITPL and JITPL was advised to construct an additional Derang - Angul 400 kV D/C line to meet the N-1 contingency criteria and to cater to the additional units planned at Derang as expansion in future.

In 4th SSCM, the members agreed to the proposal.

22.0: Installation of 400/220kV, 500MVA ICT (3rd) at Maithon

POWERGRID has informed that presently, there are 2 nos. 315MVA, 400/220kV ICTs at Maithon S/s of POWERGRID. The split bus arrangement has been made at Maithon sub-station at 400kV level and both the ICTs are located on one side of the bus sectionalizer. In view of growing ICT loading, transformation capacity augmentation by replacement of 2x315MVA ICTs with 2x500MVA ICTs along with addition of 1x125MVAr bus reactor was approved in the 14th SCM held in January-2013. The loading of Maithon ICTs has grown to more than 600MVA. Thus, even after replacement of ICTs, the N-1 criteria shall not be met during peak load condition.

Accordingly, members may discuss the installation of one more 400/220kV, 500MVA ICT (3rd) at Maithon S/s. Thus, the total transformation capacity at Maithon S/s shall be 3x500MVA.

In 4th SSCM, members agreed to the proposal.

23.0: Provision of 765kV, 80MVAr single phase spare reactor at Ranchi (New) substation of POWERGRID

POWERGRID has informed that the switchyard layout of 765/400kV Ranchi (New) S/s is Breaker and a half scheme. There are two bus reactors and one line reactor (in Ranchi-New – Dharamjaygarh 765kV S/c, ckt-1) of 765kV, 240MVAr capacity on one side (side-1) of the substation (total 10x80 MVAr single phase units including one 765kV, 80MVAr single phase spare reactor). There are 3 nos. of 240MVAr line reactors (1 no. with Ranchi New – Dharamjaygarh 765kV S/c, ckt-2 & 2 nos. with Ranchi New – Medinipur 765kV D/c line under ERSS-XVIII) on the other side (side-2). However, this side (side-
2) is not having any spare reactor unit.

The 765kV, 1-ph spare reactor is installed as ready standby along with 765kV auxiliary bus and 145kV neutral bus arrangement on side-1 such that in case of failure of any single phase

reactor on that side the spare reactor can be taken into service in short span of time (without any physical movement of spare reactor). However, in case of failure of any single phase reactor on the side-2, there is no single phase spare reactor available for replacement.

In view of the above, members may discuss installation of 765kV, 1x80MVAr single phase spare reactor at Ranchi (New) substation of POWERGRID on the side-2 also

In 4th SSCM, members agreed.

24.0: Construction of 01 no. 220 kV line bay at Darbhanga (400/220 kV) GSS under DMTCL (Darbhanga – Motihari Transmission Company Ltd.)

BSPTCL vide letter no. 2027/BSPTCL dated 06.04.2016 has requested for construction of 01 no. 220 kV line bay at Darbhanga (400/220 kV) GSS for termination of 2nd circuit of 220 kV Darbhanga (400/220 kV)-Samastipur (new) (220/132/33 kV) transmission line.

CEA vide letter no. 69/1/2012-SP&PA/1203-05 dated 15.11.2012 has cleared following transmission system of Bihar as a part of 12th plan transmission & sub- transmission system strengthening in Bihar-Phase-1 for delivery of power from Dharbanga 400/220 kV sub-sttaion:

i. 220kV D/C Darbganga (400/220 kV) –Bikhanpura new transmission line
ii. 220kV D/C Darbganga (400/220 kV) – Darbganga (220 kV BSPTCL) transmission line
iii. 220kV D/C Darbganga (400/220 kV) – Supoul (Laukahi) (220/132 kV) transmission line
iv. 220kV DCSS Darbganga (400/220 kV) – Samastipur (new) (220/132/33 kV) transmission line

BSPTCL has informed that 2nd circuit stringing of 220kV Darbhanga (400/220 kV) – Samastipur (new) (220/132/33 kV) DCSS transmission line is required to be done at this stage due to the following reasons-

a) To have extra source at 220 kV level from Darbhanga (400/220 kV).
b) To cater rising demand of electricity in future as demand is increasing exponentially due to implementation of different scheme of DISCOMS and PFA (24x7) scheme of GOI.
c) To avoid ROW, if this worked is delayed and taken up at later stage. ROW is increasing day by day. Presently sever ROW is being faced in construction of transmission lines.

Darbhanga 400/220 kV GSS is under construction by M/s DMTCL under TBCB route.
As per the scope of work given to M/s DMTCL, there is provision of 7 Nos. 220 kV line bays and space for 6 Nos. 220 kV future line bays.

The seven (7) no. of 220 kV line bays at Darbhanga are being utilized by BSPTCL for termination of the double circuit line to Motipur, Darbganga (BSPTCL) and Supoul (Laukahi), and 220 kV DCSS line to Samastipur (new). Beyond these 7 bays, M/s DMTCL is to provide only space for six (6) bays.

CEA has given no objection for construction of 01 no. 220 kV line bay at Darbhanga (400/220 kV) GSS for termination of 2nd circuit of 220 kV Darbhanga (400/220 kV)-Samastipur (new) (220/132/33 kV) transmission line. The cost of line bay will be borne by BSPTCL.

In 4th SSCM, members noted.

25.0: Connectivity of CESC system with Central Transmission Utility -CESC

CESC vide its letters dated 2/12/15 & 11/9/15 informed that considering the present peak demand & growth rate, it would require about 300MW power in the next 3 to 4 years and another 200 MW power in next 2 to 3 years.

In order to meet the future demand, CESC informed that it has placed the following proposal to CEA:

- Construction of 400/220kV substation at Rajarhat very close to PGCIL sub-station with 2x500MVA transformers
- For a connectivity to the 400/220kV Rajarhat (PGCIL) S/s for 500MW power
- 220kV underground D/C cable connection to the load centre (East Calcutta substation)

It was also informed that WBSETCL was already requested to give "No objection" for the above connectivity.

In 2nd SSCM, CTU informed that the proposal will be placed in next LTOA meeting.

The committee advised WBSETCL to consider the CESC proposal and give their official communication in this regard.

In 3rd SSCM, WESETCL informed that bilateral discussions were going on and it will be resolved at the earliest.

In 4th SSCM, WESETCL informed that in the joint meeting with CESC for their future requirement, CESC has not given any requirement of CTU connectivity.

Members felt that since CESC is a distribution licensee under WBSETCL control area therefore if WBSETCL feels CESC may be allowed to present their case in forthcoming SCM meeting.

26.0: Talcher Stage-III (2x660MW): Application for Connectivity of 1320MW and Long Term Access (LTA) of 622.05MW

Connectivity & LTA application of NTPC for Talcher-III generation project was discussed in the 10th Connectivity and LTA meeting held on 25th May 2015, wherein following system

was proposed for LTA:

- Talcher-III – Angul 400kV D/c line (HTLS equivalent to Quad Moose)

In the meeting, Odisha proposed construction of Talcher-III – Meramundli-B 400kV D/c line for drawl of its share. In view of Odisha's proposal, issue of paralleling of ISTS & STU (Odisha) network at Talcher-III generation switchyard was discussed and it was decided to resolve the matter in a separate meeting.

In view of the same, CEA convened a meeting on 04th Nov 2015 to resolve the issue of drawl of power by Odisha. In the meeting it was decided that, GRIDCO would apply for LTA of 622MW (Odisha's share) from Talcher-III project and OPTCL would submit details regarding drawl of Odisha's share. The same is still awaited. Further, in the meeting, it was decided that the evacuation system would be finalised in the Standing Committee Meeting on Power System Planning of Eastern Region.

For evacuation and transfer of power from Tacher-III to beneficiaries, it is proposed to connect the generation project to Angul S/s of POWERGRID through high capacity 400kV D/c line. Accordingly, it is proposed to grant LTA of 622.05MW to NTPC for Talcher-III generation project with following connectivity transmission line:

(i) Talcher-III – Angul 400kV D/c (Triple Snowbird)

In 4th SSCM, OPTCL informed that they are capable of drawing their 50% of Talcher-III with their own system and shown their unwillingness to the above proposal.

Member Secretary, ERPC recalled the views of NTPC as recorded in 32nd TCC and expressed that the this issue needs to be deliberated in the presence of NTPC, Powergrid, OPTCL and other beneficiaries of Talcher-III.

It was decided that the issue will be further deliberated in SCM meeting scheduled to be held on 13.06.2016.in presence of member from NTPC.

27.0: Construction of new 400 kV Sub-stations & lines by OPTCL

A. Construction of 400/220kV S/s at Meramundali "B":

In 3rd SSCM, OPTCL informed with a presentation that as 400kV Angul-Meramundali is major contributor of fault current at Meramundali, there is some modification in the connectivity of Meramundali-B is needed. The proposed connectivity will be as follows:

- Construction of 400kV D/C TTPS Stage-III to Meramundali-B line for power evacuation from TTPS expansion
- Shifting of Duburi to Meramundali 400kV D/C line from Meramundali to Meramundali-B.
- Shifting of GMR to Meramundali B (shifting of GMR Odisha state dedicated unit connected to existing Meramundali bus to Meramundali-B)
- Shifting of Duburi to Meramundali 220kV D/C line from Meramundali to Meramundali-B.

On query, OPTCL informed that the Meramundali-B is being designed with fault level of 63 kA.

B. Construction of 400/220kV S/s at Narendrapur with 400kV DC line from Pandiabil (PGCIL) to Narendrapur.

To cater to the normal load growth and also upcoming bulk loads in Narendrapur area the following was proposed in 2nd SSCM:

- 400kV D/C line from Pandiabil 400/220kV substation to Narendrapur
- New 220kV D/C line from Narendrapur 400/220kV substation to Aska 220/132kV
- LILO of both the circuits of existing 220kV D/C line from Therubali to Narendrapur at Narendrapur 400/220kV substation

In 3rd SSCM, OPTCL informed that Narendrapur S/s is also being constructed for completing the 400 kV ring of OPTCL system which, in future, will be connected to 400 kV Theruvali and Jayanagar S/s.

C. Construction of 400/220kV Khuntuni S/s with LILO of 400kV D/C line from Meramundali-B to Dhubri.

In 3rd SSCM, OPTCL informed that the 2x500 MVA, 400/220 kV Khuntuni S/s is proposed between Meramundali and Mendhasal to cater the growing demand in the area. It will be a part of 400 kV ring of OPTCL system. The connectivity details as explained in the meeting are as given below:

- LILO of 400kV D/C Meramundali-B to Dhubri line
- LILO of Meramundali-Mendhasal 400kV D/C line
- 220kV DC line from Khuntuni to Dhenkanal New and Bidanasi
- 1X660 MW IPP of LANCO Babandh

OPTCL presented the load flow study considering all the above proposals. They explained that for study the TTPS generation is stepped up to 400kV and connected to 400kV bus of proposed Meramundali-B substation through 400kV D/C line. It is a part of Transmission Plan for the year 2015-16 to 2018-19. It is required to evacuate state share of 50% power i.e from one unit (660 MW). System Study has been done with connection of 1X660 at Meramundali "B".

In 31st TCC, for all the above four proposals, CTU expressed that the latest developments in transmission and generation planning of Odisha system should be submitted for detailed study and also to arrive technically optimum scheme for evacuation of TTPS Stage III.

OPTCL informed that they already carried out the detailed study and the same along with the requisite information on transmission planning will be shared with CTU/CEA.

TCC advised CTU/CEA to carry out the detailed study and place before next SCM for further deliberation.

In 4th SSCM, OPTCL informed that the study results have already been forwarded to

CEA/CTU.

On query. OPTCL clarified that these sub-stations are required to meet the growing demand of Odisha and has no link with the Talcher-III generation evacuation.

Members felt that Talcher-III evacuation system needs to be deliberated in detail in forth coming SCM meeting and these 400/220 kV Sub-stations will also be discussed in the 18th SCM for further decision.

ITEM NO. E37 :	**Priority-based commissioning of bus reactor for control of high voltage during lean periods**

The status as updated in 32nd TCC is as given below:

S.N.	Reactor	Status
1	125 MVAR reactor of Jeypore	*Commissioned*
2	125 MVAR Bus reactor of Jamshedpur	Will be available by June 2016 and will be commissioned in another 3 months.
3	125 MVAR Bus reactor of Biharshariff	
4	Additional bus-reactor of 125 MVAR capacity at Beharampur on urgent basis.	Will be made available for commissioning by Dec, 2016.
5	50 MVAR at Behrampur on urgent basis by diverting from Rourkela which is kept as a spare	By June, 2016. After commissioning of 125 MVAR reactor the 50 MVAR will be removed and kept spare.

ERLDC informed that there is severe high voltage problem at 400kV Jamshedpur and requested Powergrid to expedite.

TCC advised Powergrid to explore the possibility of diverting the reactor from the other schemes.

Powergrid agreed.

ITEM NO. E38 :	**Status of Transmission projects approved in various meetings**

The status as updated in 32nd TCC/ERPC meeting on transmission projects approved to various meetings is given below:

Sl No.	Scheme	ERPC/TCC Meeting	Latest status updated in 32nd TCC Meeting
1	Installation of 2x500 MVA, 400/220 kV ICTs instead of earlier approved 400/220 kV, 2x315 MVA + 1x500 MVA, ICTs at Kishanganj	28th ERPC Meeting	*At Kishenganj 1st ICT will be commissioned by March, 2016 and 2nd ICT by May, 2016.*
2	Construction of 132 kV D/C Deoghar –		To be discussed in empowered

	Banka line for reliable power supply to Railway TSS from 132 kV Deogarh (JSEB) S/S		committee meeting conducted by CEA.
3	Modification of 132 kV Bus arrangement at 220/132 kV Birpara S/s of Powergrid from existing single main & transfer bus scheme to double main scheme.	28th ERPC Meeting	Powergrid informed that the NIT – Nov, 2015. Award March, 2016.
4	Change in proposed the Associated 765 kV System Strengthening Scheme in ER	28th ERPC Meeting	It was discussed and finalized in 17th SCM.
5	Conversion of 50 MVAR Line Reactor presently installed at Jeerat end of 400 kV Berhampur – Jeerat line to Bus Reactor in Parallel with existing Bus Reactor at Jeerat	26th ERPC Meeting	Powergrid informed that order has been placed and the work is expected to completed by March, 2016.
6	Retrofitting of pilot wire protection of 132 kV Purnea (PG) – Purnea (BSPHCL) feeders	26th ERPC Meeting	Powergrid informed that the scheme was covered in the scheme of modification of 132 kV Bus arrangement at 220/132 kV Purnea S/S of Powergrid under GIS package. The work has been awarded and expected to be completed by July, 2016.
7	Augmentation of existing 100MVA ICT with 160MVA at 220/132 kV Birpara and Siliguri S/S	25th ERPC Meeting	Birpara by March, 2016 & Siliguri by June, 2016. (Subject to the shutdown approval by WB.)
8	Transmission System for immediate evacuation of power from North Karanpura STPP (3x660 MW) to Chandwa and Gaya Pooling stations of Powergrid	25th ERPC Meeting	Powergrid informed that the scheme has been changed; fresh DPR is under preparation.
9	Addition of 1x125 MVAR Bus Reactor each at Baripada & Maithon 400 kV S/S	25th ERPC Meeting	Powergrid informed that the work has been awarded and expected to be completed by November, 2016.
10	Strengthening of Farakka – Malda corridor	25th ERPC Meeting	Powergrid informed that the work has been awarded and expected to be completed by November, 2016.
11	Procurement of two single phase spare ICT units (2x500 MW), 765/400 kV for Eastern Region - to be stationed at Angul & Jharsuguda S/S).	25th ERPC Meeting	Powergrid informed that work has been awarded on March, 2015 and expected to be completed by September, 2016.
12	Augmentation of Transformation Capacity at 400/220 kV Baripada S/S	25th ERPC Meeting	Powergrid informed that the work has been awarded and expected to be completed by November, 2016.
13	Augmentation of transformation capacity at the existing 400/220 kV Jamshedpur (PG) & Sasaram (PG) S/S	25th ERPC Meeting	*At Sasaram 1st ICT will be commissioned by March, 2016 and 2nd ICT by May, 2016 ,* *At Jamshedpur 315 MVA Transformer shall be shifted from Patna Substation after its Augmentation. Target for commissioning – June 16.*
14	Establishment of 220 kV MTPS (Extn.) – Muzaffarpur (PG) D/C line (3rd & 4th Circuits)	25th ERPC Meeting	Bay construction at Muzaffarpur to be done by Powergrid under consultancy projected. Expected to be completed by November, 2016.

15	Modification of 132 kV Bus arrangement at 220/132 kV Siliguri S/S (PG)	25th ERPC Meeting	Powergrid informed that the work has been awarded and expected to be complete by November, 2016.
16	Procurement of 110 MVAR, 765 kV Single Phase spare Reactor unit at Sasaram	25th ERPC Meeting	Powergrid informed that the work has been awarded on March, 2015 and expected to be delivered by March, 2016.
17	Establishment of Gazol 220/132 kV S/S in Malda by LILO of Malda-Dalkhola 220 kV D/C line of Powergrid	25th ERPC Meeting	WBSETCL assured that the scheme will be completed within 20 months from the date of LOA
18	Construction of down linking transmission network for drawal of power from Kishanganj 400/220 kV S/S of Powergrid	25th ERPC Meeting	Powergrid informed that four numbers of 220 kV bays at 440 kV Kishanganj (PG) for 2xD/C 220 kV Kishanganj (PG)-Kishanganj (BSPHCL) will be under regional scheme as informed by CEA. The work has been awarded on October, 2014 and expected to be completed by June, 2016.
19	Upgradation of the 3x100 MVA spare ICT at Purnea with 3x160 MVA ICT.	25th ERPC Meeting	*At Purnea two ICTs have been replaced. Replacement of third one is under progress. Target 20 March 16.*
20	Modification of 132 kV Bus arrangement at 220/132 kV Purnea S/S of Powergrid	25th ERPC Meeting	*Powergrid informed that the scheme will be implemented by July, 2016.*
21	Single phase spare converter transformer units of 1x234MVA for pole 1 and 1x201.2 MVA for pole 2 at 2x500 MW HVDC Back-to- Back station at Gazuwaka (one for each pole)	25th ERPC Meeting	Powergrid informed that preparation of DPR in in progress.
22	GIS bays for 400 kV, 125 MVAR Bus Reactor at Baripada	24th ERPC Meeting	Powergrid informed that the work has been awarded and expected to be complete by November, 2016.
23	Eastern Region Strengthening Scheme-XV: Construction of Farakka - Baharampur 400kV D/C (HTLS) line and subsequent modification of LILOs	17th SCM & 30th ERPC	
24	Installation of 3rd 400/220 kV, 1x315 MVA ICT at Durgapur & New Siliguri Substation	17th SCM & 30th ERPC	
25	Replacement of 400/220kV, 2x315 MVA ICTs at Malda , Jeypore and Rourkela Substation with 400/220 kV, 2x500 MVA ICTs	17th SCM & 30th ERPC	
26	Conversion of Fixed Line Reactor at Lakhisarai – Biharsharif 400 kV D/c & Keonjhar – Rengali 400 kV S/c into Switchable Line Reactor	17th SCM & 30th ERPC	*Expected in May 2016.(For Lakhisarai – Biharsharif 400 kV D/c)*
27	Commissioning of 2x160 MVA, 220/132 kV Auto transformer at Daltonganj	17th SCM & 30th ERPC	*Under Engineering Stage.*

	substation along with 4 number of 132 kV line bays		
28	Extension of under construction 400kV D/C Latehar-Essar lines up to 400kV Chandwa Pooling station(PG), under the scope of JUSNL	17th SCM & 30th ERPC	
29	Establishment of 2x500 MVA 400/220 kV sub-station at Dhanbad by LILO of both circuits of Ranchi-Maithon RB 400 kV D/C line at Dhanbad	17th SCM & 30th ERPC	
30	Construction of 6 no. 400 kV line bays and bus splitting (765 kV & 400kV) arrangement at Jharsuguda (Sundargarh) as GIS	17th SCM & 30th ERPC	
31	Reconductoring of Maithon RB-Maithon 400 kV D/C line with HTLS conductor	17th SCM & 30th ERPC	
32	Installation of 3rd 400/220 kV 500 MVA transformer at Muzaffarpur	17th SCM & 30th ERPC	*Charged on Dated 30.12.15.*
33	Construction of North Karanpura – Gaya 400 kV D/c & North Karanpura – Chandwa (Jharkhand) Pooling Station 400 kV D/c	17th SCM & 30th ERPC	*Under DPR stage.*

ITEM NO. E39 :	**Status of Spare Transformers & Reactors approved in various meetings**

The status updated as in 32nd TCC/ERPC meeting on Spare transformers & reactors to be commissioned by Powergrid for use in ER.

Sl No.	**Spare transformer/reactor**	**Latest status updated in 32nd TCC Meeting**
1	1 X 315 MVA, 400/220 KV AUTO TRANSFORMER Biharshariff	Used at Biharshariff in place of failed ICT. Procurement of new spare is under progress. NIT- Dec, 2015.
2	1 X 315 MVA, 400/220 KV AUTO TRANSFORMER Durgapur	Utilized at 400 kV Farakka. Procurement of spare ICT is under process. NIT – Dec, 2015.
3	1 X 80 MVAR SHUNT REACTOR AS O&M SPARE Rourkela Substation	Available at site.
4	2 X 500 MVA, 765/400 KV single phase ICTs at Angul & Jharsuguda.	Powergrid informed that the work has been awarded on March, 2015 and expected to be delivered by September, 2016.
5	1 X 110MVAr, 765KV single phase bus reactor at Sasaram	*The work has been awarded on March, 2015 and expected to be delivered by May, 2016.*
FOR MEMBER STATES:		
1	2 X 315 MVA 400/220 kv ICTs	Available at Jamshedpur & Rourkela

2	2 X 160/150 MVA 220/132 kv ICTs	One ICT utilised at Purnea S/s, 2nd ICT available at Siliguri S/s.
3	1 X 50 MVA 132/66 kv ICT	Available at Gangtok
SURPLUS FROM OLD AS SPARE		
1	3x 50 MVA, 220/132kV (to be released from Malda (2nos.) & Birpara (1no.) S/Ss	Replaced with 160MVA transformer.
2	2x100 MVA, 220/132kV (to be released from one at Birpara & one at Siliguri)	Yet to be taken out
3	2x100 MVA, 220/132kV (to be released from Purnea (2nos.) S/Stn.)	Yet to be taken out

ITEM NO. E40 :	**Commissioning of new elements in next 6 months-- PGCIL**

Following elements are expected to be commissioned in the forthcoming months:

Sl	Name of element	Ant. commissioning	Latest status updated in 32nd TCC Meeting
1	LILO of Bishwanath Chariali - Agra HVDC line at New Pooling Station in Alipurduar	Jun'16	Work under progress. Commissioning matching with associated HVDC terminal.
2	LILO of 400KV D/C Bongaigaon - Siliguri line (Pvt. Sector line) at New Pooling Station in Alipurduar	Jun'16	Completion matching with Alipurduar PS.
3	LILO of 220KV D/C Birpara - Salakati line at New Pooling Station in Alipurduar	Jun'16	Completion matching with Alipurduar PS.
4	LILO of Siliguri (Existing) - Purnea 400KV D/C line (Q) at New Pooling station at Kishanganj	Feb'16	Completion matching with Kishenganj S/s.
5	LILO of Siliguri - Dalkhola 220KV D/C line at New Pooling station Kishanganj	Feb'16	Completion matching with Kishenganj S/s.
6	LILO of 400KV D/C Baripada - Mendhasal at Pandiabil (In place of 400KV D/C Mendhasal-Uttra line)	Mar'16	Completion matching with Pandiabil sub station.
7	400KV D/C Kishanganj - Patna line (Quad)	Feb'16	*Completion matching with Kishanganj S/S by March 16.*
8	LILO of Teesta-III - Kishanganj 400kV D/C (Q) at Rangpo(being constructed under JV route)	Mar'16 (Loop-in)	Work was held-up due to severe ROW problem issue. Now resolved. Completion of 01 no. LILO deferred to Mar'17.
9	400KV D/C Ranchi - Jharkhand Pooling Stn. line (Quad)	Mar'16	Testing under progress. Completion matching with Jharkhand Pool & Jharkhand Pool bay at line.
10	400KV D/C Jharkhand Pool - Gaya line (Quad)	Mar'16	Permission to work received in May'15. Repeated stoppage of work by extremists affecting progress.

11	400KV D/C trans. Line for swapping of Purneabaya (1&2) with Sasaram bays (#3&4) at Biharshariff S/Stn.	Mar'16	*ROW problem being encountered. Expected to be delayed.* *Expected to be commissioned in March 2016.*
12	400KV D/C trans. Line for reconfiguration of BiharshariffCkt III&IV from its present position to St.-II side of Kahalgaon Sw. yd. of NTPC	Mar'16	*Line Shall be completed by May 16.* *Bay at NTPC yet to be awarded.*
13	400KV D/C Rajarhat - Purnea line (Tripal)(with LILO of one ckt at Gokarana (WBSETCL) & other ckt at Farraka (NTPC).	Jun'16	
14	LILO of Subhashgram -Jeerat 400KV S/C line at Rajarhat	Jun'16	
15	400/220KV HVAC & 3000MW +/-800KV HVDC New Pooling Station in Alipurduar	Jun'16	Award placed in Mar'11. Supply, civil works & erection under progress. Land under acquisition. Partly land acquired.
16	400/220/33 KV Kishanganj Sub station (GIS)	Feb'16	*Erection & testing under progress.* *Target for commissioning March 2016*
17	400/220 KV Uttara (Pandiabil)	Mar'16	Alternate land acquired at Pandiabil. Land handed over in Mar'13. Supply, civil works & erection under progres. Progress severely affected due to repeated ROW.
18	400KV GIS Pooling Station (Jharkhand Pool) near Essar	Mar'16	*Target for Commissioning – April 16.*
19	400/220KV Rajarhat S/Stn. (GIS)	Jun'16	Supply & Civil works under progress. Land acquired in Feb'14. Progress hampered due to rains.

ITEM NO. E41 :	**HIGHLIGHTS & GRID PERFORMANCE FOR THE PERIOD FROM JAN' 2016 TO APR' 2016**

A) Real time operation:

During the period under review, power supply position in the region was as under:

	Jan-15	Feb-15	Mar-15	Apr-15	Jan-16	Feb-16	Mar-16	Apr-16
Avg Frq. (Hz)	50.00	50.00	49.99	49.99	49.98	50.01	50.00	49.98
Pk Dmd (MW)	16116	16988	17898	17647	17173	17868	18719	19112
Energy Consum. (MU/day)	322	335	347	342	335	349	376	405
ISGS Gen (MU)	3527	3174	3548	3108	3403	3387	3399	3292
Region Gen (MU)	12373	11666	12769	12066	12392	12477	13813	14288
% increase in Reg Gen.	10.2	13.8	8.4	-0.2	0.2	6.9	8.2	18.4

B) System Operational Discipline during the period from Jan-16 to Apr-16

i) The month-wise energy drawls of ER constituents were as given hereunder:

	Jan-16		Feb-16		Mar-16		Apr-16	
	SCH	ACT	SCH	ACT	SCH	ACT	SCH	ACT
BSPHCL	1932	1932	1731	1746	1850	1881	1817	1877
JUVNL	362	376	354	372	342	371	419	489
DVC	-515	-522	-561	-573	-820	-817	-1115	-1144
OPTCL	597	651	631	688	777	821	714	742
WBSETCL	838	862	806	856	1183	1221	1340	1354
SIKKIM	39	36	40	34	40	36	38	33

C) Frequency & Voltage

Frequency profile for the period during **Jan-16 to Apr-16** is given hereunder. The frequency mostly remained within the allowable range for the entire period

Month	% of time for which frequency			
	<49.9	**49.9-50.05**	**> 50.05**	**IEGC band 49.9-50.05**
Jan-16	9.19	67.96	22.85	**67.96**
Feb-16	5.62	70.49	23.89	**70.49**
Mar-16	8.69	70.01	21.29	**70.01**
Apr-16	12.9	70.0	17.1	**70.0**

Maximum and minimum voltages recorded at some important 400 kV sub-stations were as follows:

	Jan-16		Feb-16		Mar-16		16-Apr	
SUB-STATION/	MAX.	MIN	MAX.	MIN	MAX.	MIN	MAX.	MIN
POWER STN.	(KV)	(KV)	(KV)	(KV)	(KV)	(KV)	(KV)	(KV)
FARAKKA	424	409	422	411	428	408	428	409
SUBHASGRAM	423	383	431	375	423	382	422	374
DURGAPUR	425	408	423	408	422	403	422	404
JEERAT	428	388	427	385	419	375	415	372
PURNEA	435	385	431	396	429	393	429	397
MUZAFFARPUR	418	381	412	363	412	392	422	389
JAMSHEDPUR	437	418	429	415	432	413	425	412
RENGALI	415	398	408	395	405	391	405	390
JEYPORE	428	372	420	379	421	368	425	370

D) Constituent-wise demand met is given below:

		Jan-15	Feb-15	Mar 15	Apr 15	Jan-16	Feb-16	Mar 16	Apr-16
BSPHCL	AVG MAX DMD(MW)	2603	2636	2617	2600	3291	3224	3170	3336
	MU/DAY	56	55	54	53	66	64	63	66
JUVNL	AVG MAX DMD(MW)	997	1025	965	975	1084	1068	1131	1134
	MU/DAY	22	23	22	22	23	23	24	24
DVC	AVG MAX DMD(MW)	2442	2447	2444	2467	2592	2549	2622	2767
	MU/DAY	58	57	57	58	59	58	60	65
ODISHA	AVG MAX DMD(MW)	3382	3469	3680	3697	3731	3818	4010	3881
	MU/DAY	66	67	75	78	69	74	79	78
WEST BENGAL	AVG MAX DMD(MW)	6538	6855	7364	7018	6191	6561	7224	7697
	MU/DAY	119	133	140	132	117	129	149	170

E) Inter-regional energy exchange during the review period were as follows:

(Figures in MU)

Region	Jan-16		Feb-16		Mar-16		Apr-16	
	SCH	ACT	SCH	ACT	SCH	ACT	SCH	ACT
NER	223	397	183	247	199	241	54	398
SR	252	293	432	547	464	534	399	311
WR	-196	151	302	254	167.3	64	198	62
NR	1351	703	1037	825	1045	769	1277	867
TOTAL	**1629**	**1543**	**1954**	**1873**	**1876**	**1607**	**1927**	**1639**

F) Reservoir levels of important hydro stations in ER during Jan-16 to Apr-16 (as on last day of the month) is given below:

STATION	MDDL/ FRL	Jan-16	Feb-16	Mar-16	Apr-16
BURLA	590/630 FT	622.5	619.7	615.7	609.8
BALIMELA	1440/ 1516 FT	1492.7	1487.9	1480.0	1477.0
RENGALI	109.7/ 123.5 MTR	118.0	117.5	116.1	114.3
U. KOLAB	844/ 858 MTR	855.0	853.6	851.7	849.6
INDRAVATI	625/ 641 MTR	634.6	633.9	633.0	631.8
MACHKUND	2685/ 2750 FT	2739.9	2735.2	2730.3	2724.5

G) IMPORTANT EVENTS :

1. 400kV Rangpo-Teesta stage-III circuit-I and II bay at Rangpo (bay no-402 and 406) first time charged at 16:18hrs and 16:37hrs of 07/01/16 respectively.
2. 400kV Rangpo-Kishanganj circuit-I and II bay at Rangpo (bay no-404 and 408) first time charged at 16:31hrs and 16:41hrs of 07/01/16 respectively.
3. 80MVA Station Transformer-IV at Sagardighi first time charged on no load at 17:22hrs of 08/01/16 from 400kV side.
4. 400kV Bus sectionalizer breaker-I at Maithon first time charged at 18:20hrs of 15/01/16.
5. 765/400kV, 1500MVA ICT-III at Angul first time charged at 12:43hrs of 23/01/16.
6. 765kV Angul-Jharsuguda-I along with associated bays and 240MVAr L/R at both Angul and Jharsuguda ends first time charged at 17:30hrs of 25/01/16.
7. 160MVA ICT-I at Siliguri first time charged on no load at 23:59hrs of 29/01/16.
8. 220/132kV, 100MVA ICT along with associated bays and 132kV bay of Muzaffarpur-Nepal-II at Muzaffarpur first time charged at 22:11hrs of 31/01/16.
9. 132/33 kV new 50 MVA Transformer at Bodhgaya (BSPTCL) GSS charged on 08.01.2016
10. 220/132 kV new 100 MVA Transformer at Khagaul (BSPTCL) GSS charged on 16.01.2016
11. 220/132 kV new 160 MVA Transformer at Darbhanga (BSPTCL) GSS charged on 18.01.2016
12. 220kV M.B. #1 & 2 of 220/132 KV DHARAMPUR GIS (WBSETCL) S/S charged via LILO arrangement of 220kV JRT-RISH #2 on 24.01.16 at 19:05hr & 19:07hr respectively.
13. 220/132kv 160MVA Tr #1 & 2 of 220/132 KV DHARAMPUR GIS (WBSETCL) S/S loaded in parallel on 25.01.16 at 12:58hr & 12:59hr respectively.
14. 220KV Krishnagar-Gokarna D/C lines (105.5 km) Charged & Loaded on 28.01.16 at 11:45 Hrs.
15. 400kV Muzaffarpur-Dhalkebar(Nepal) first time charged at 132kV level at 17:41hrs of 17/02/16. Subsequently power flow started from 17/02/16 onwards.

16. 132kV Chuzhachen-Melli was converted to 132kV Chuzhachen-Gangtok at 18:46hrs of 27/02/16 and 132kV Rangpo- Gangtok converted to 132kV Rangpo-Melli at 19:04hrs of 27/02/16.
17. 220 kV D/C NJP - TLDP-IV line (145 CKM) has been commissioned on 13/02/2016 under RFD Target 2015-16
18. 132/33 kV new 50 MVA Transformer at Kishanganj (BSPTCL) GSS charged on 01.02.2016
19. 132/33 kV new 50 MVA Transformer at Ara (BSPTCL) GSS charged on 10.02.2016.
20. 132/33 kV Madhupur (JUSNL) GSS was commissioned on 10.02.2016 with 2x50 MVA transformers.
21. 132 kV Madhupur-Jamtara D/C line (54 km) was charged on 10.02.2016.
22. 132 kV Patnagarh- Padampur line along with 20 MVA Transformer at Padampur (OPTCL) grid S/S was charged on 24.02.2016 at 18:40 Hrs.
23. 220/132 kV Atri (OPTCL)S/S was charged with 160 MVA Auto-II and LILO arrangement of 220 kV Mendhasal-Narendrapur line along with 20 MVA, 132/33 kV Transformer-I on 24.02.2016 at 15:10 Hrs.
24. 220kV Dalkhola-Siliguri-I & II LILOed at Kishanganj at 22:22hrs and 23:02hrs of 01/03/16 respectively.
25. 500MVA ICT at Kishanganj first time charged at 23:20hrs of 01/03/16 from LV side.
26. 765kV Gaya-Varanasi first time charged at 11:28hrs of 10/03/16 along with 240MVAr line reactor.
27. LILO of one circuit of 400kV Teesta-III-Kishangunj-D/C at location no 85 (length 10.89kM) at Rangpo GIS substation has been done via bays 404 and 408 at 11:43hrs (404bay) and 11:44hrs (408bay) of 10/03/16.
28. 400kV Patna-Kishanganj-II first time charged with 80MVAr line reactor at Kishanganj at 23:42hrs of 14/03/16.
29. 125MVAr bus reactor at Kishanganj charged for the first time at 23:59Hrs of 14/03/16.
30. 400kV Patna-Kishanganj-I first time charged along with 80MVAr line reactor at Kishanganj at 00:13hrs of 15/03/16.
31. 400kV Binaguri-Kishanganj-I and 400kV Purnea-Kishanganj-I (LILO of 400kV Binaguri-Purnea-III at Kishanganj) first time charged at 19:40hrs and 20:05hrs of 16/03/16 respectively.

32. 400kV Binaguri-Kishanganj-II and 400kV Purnea-Kishanganj-II (LILO of 400kV Binaguri-Purnea-IV at Kishanganj) first time charged at 20:55hrs and 21:13hrs of 16/03/16 respectively.
33. Nabinagar (BRBCL) Unit-1 (250MW) first time synchronised at 18:15hrs of 20/03/16.
34. 400kV Biharsariff-Varanasi-II with 80MVAr L/R at Biharsariff first time charged at 23:45hrs of 29/03/16.
35. 400kV Biharsariff-Varanasi-I first time charged at 00:43hrs of 30/03/16.
36. 400kV FSTPP-Malda-I & II first time charged after reconductoring works with Twin HTLS at 18:25hrs and 18:18hrs of 30/03/16.
37. 500MVA ICT at Sasaram first time charged at 19:19hrs of 30/03/16.
39. 160MVA ICT-1 at Purena (PG) charged for the first time at 13:22hrs of 31/03/16.
40. Raghunathpur Unit-II (600 MW) declared COD w.e.f. 00:00hrs of 31/03/16.
41. Raghunathpur Unit-I (600 MW) declared COD w.e.f. 22:00hrs of 31/03/16.
42. Teesta Low Dam HE Project, Stage-IV, Unit #2 (40 MW) declared COD w.e.f. 00:00 Hrs of 31/03/16.
43. 765kV Gaya-Varanasi-II was taken into service for the first time at 17:20hrs of 19/04/16.
44. 132 kV main bus of Ujanu S/s charged on 02.04.16 at 13:10 Hrs with 132 kV Siliguri-Ujanu (5.5 Km) line (which is LILO of 132 kV NBU- Siliguri line at Ujanu).
45. 132 kV Ujanu-NBU line (4.5 km) line charged on 02.04.16 at 13:23 Hrs.
46. 132/33 kV, 31.5 MVA Transformer-I was charged and loaded on 02.04.16 at 13:15 Hrs.
47. 132 kV Atri-Argul D/C line charged on 29th April, 2016.

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MINUTES
OF
33rd TCC MEETING

Date: 24.06.2016

Place : Patna

EASTERN REGIONAL POWER COMMITTEE

Minutes of 33rd TCC MEETING

Date: 24th June, 2016 (Friday) **Venue: Patna, Bihar.**

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

ITEM NO. A1:	Confirmation of the minutes of 32nd TCC meeting held on 19.02.2016 at Ranchi

The minutes of the 32nd TCC meeting held on 19th February, 2016 were circulated vide letter no. ERPC/ TCC& Committee/14/2016/H4410-4477 dated 3rd March, 2016.

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

Members may confirm the minutes of 32nd TCC meeting.

Deliberation in the TCC meeting

Members confirmed the minutes of 32nd TCC meeting.

PART B: ITEMS FOR DISCUSSION

ITEM NO. B1:	Status of Bus Splitting schemes in Eastern Region

A. Bus Splitting of Powergrid Sub-stations

In 118th OCC, Powergrid updated the status as follows:

- Maithon ---Completed
- Durgapur--Completed
- Biharshariff—Foundation work has been completed but shutdown are yet to be received to complete the work.

In 122nd OCC, Powergrid informed that shutdown has been placed from 13th -14th June, 2016. BSPTCL is to give real time concurrence.

BSPTCL, CTU may update.

Deliberation in the TCC meeting

PGCIL informed that shutdown for 400kV Biharshariff S/s was not approved by BSPTCL.

BSPTCL informed that shutdown will be given after availability of 220kV Tenughat-Biharshariff D/C line.

JUSNL informed that 220kV Tenughat-Biharshariff D/C line will be in service by 1st week of July 2016.

TCC advised BSPTCL to approve the shutdown as soon as the 220kV Tenughat-Biharshariff D/C line will be in service as the work is pending from long time.

PGCIL, BSPTCL to update the status in next OCC meeting.

ERLDC informed that the bus splitting schemes were planned in 2011-12 considering 400kV Durgapur-Jamshedpur and 400kV Durgapur-Maithon connectivity but these lines are getting delayed.

On query, PGCIL informed that the implemented bus splitting schemes could be made operational with immediate effect.

ERLDC requested CTU to carryout detailed study on bus splitting schemes to verify operational constraint with the present connectivity.

TCC advised CTU to carry out a final study post bus-splitting and inform ERLDC and ERPC.

ERPC may note.

B. Bus Splitting of Kahalgaon STPS Stage I&II, NTPC

In 121st & 122nd OCC, NTPC has given the present status as follows:

- 400/132kV Switchyard package - bid opened on 14.03.16. Awarded on 04.05.2016.
- Site levelling – Site package awarded, expected to be completed by June, 2016.
- Transformer package – Techno commercial under evolution. Price bid opened on 9th June, 2016.

NTPC may update.

Deliberation in the TCC meeting

NTPC updated the latest status as follows:

- *400/132kV Switchyard package - bid opened on 14.03.16. Awarded on 04.05.2016.*
- *Site levelling – Site levelling package awarded, expected to be completed by August, 2016.*
- *Transformer package and Shunt reactor– Will be awarded by July, 2016.*

ERPC may note.

ITEM NO. B2:	Status of Bandel Islanding Scheme-Agenda submitted by WBPDCL

In 31st ERPC meeting Bandel Islanding Scheme was approved for implementation. WBPDCL informed that Bandel Islanding scheme has been taken up by them and would be implemented in right earnest. WBPDCL proposed for PSDF funding for implementation of Bandel Islanding Scheme.

In 32nd TCC, it was informed that PSDF funding for such type of schemes may not be applicable. TCC felt that since other islanding schemes were funded from own source the same could be applied in this case also. TCC advised WBPDCL to fund the scheme from own source. WBPDCL agreed.

Subsequently, in the PSDF review meeting held on 29.04.16 in Delhi with Joint Secretary (OM), MOP, GOI in Chair, ERPC placed a proposal for funding the Bandel Islanding scheme from PSDF. The review committee informed that such type of islanding scheme is now being funded by PSDF and therefore Bandel Islanding Scheme also can be included.

Accordingly, WBPDCL was requested to place the detail proposal for PSDF funding to nodal agency NLDC with a copy to ERPC at the earliest so that the road map is strictly adhered to.

In 122nd OCC, It was informed that DPR for PSDF funding is under preparation.

WBPDCL also informed that tendering is in progress.

WBPDCL may update the latest status.

Deliberation in the TCC meeting

WBPDCL informed that DPR has been submitted to NLDC on 22-06-2016 for funding from PSDF.

ERPC may note.

ITEM NO. B3:	FSTPS Islanding Scheme, NTPC

In 118th OCC, NTPC informed that their part is ready for implementation.

Powergrid informed that the battery charger has been delivered and expected to complete the work by March, 2016.

In 119th OCC, Powergrid informed that the battery charger has been delivered to site and for commissioning with deputation of service engineer JUSNL has to ensure the supply of materials which are in the scope of JUSNL.

OCC advised JUSNL to coordinate with Powergrid and arrange the required materials/works which are in the scope of JUSNL. JUSNL agreed.

In 120th OCC, JUSNL informed that the required materials/works have been arranged, Powergrid may start the commissioning work.

In 121st OCC meeting, Powergrid informed that official confirmation for the readiness of site/material availability by JUSNL is still awaited.

OCC advised JUSNL to give official correspondence regarding their readiness and co-ordinate for early commissioning of the Islanding scheme.

In 122nd OCC, NTPC informed that cable laying completed and interfacing is pending.

JUSNL informed that the required materials/works will be completed within 20 days and Powergrid will be contacted accordingly.

NTPC, JUSNL and Powergrid may update.

Deliberation in the TCC meeting

JUSNL informed that the required materials/works will be completed by 1st July 2016 and PGCIL will be informed accordingly.

TCC advised JUSNL to send an official letter to PGCIL confirming their readiness with a copy to ERPC.

PGCIL informed that they would mobilize the vendor within 10 days after receiving the official communication from JUSNL.

ERPC may note.

ITEM NO. B4:	Status of construction of 400 kV Sterlite-Jharsuguda D/C sections

Several deliberations were held in this forum on the issue of construction of 400 kV Sterlite – Jharsuguda D/C dedicated line of Vedanta Ltd (formerly known as Sesa Sterlite Ltd).

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

TCC advised Vedanta to strictly adhere to the schedule.

In 32nd TCC, Vedanta assured that they will commission the line by 15th July, 2016.

However, TCC advised Vedanta to strict to the target date given in the 31st TCC/ERPC Meeting i.e. April, 2016 and advised to update the schedule in OCC meetings.

In 122nd OCC, Vedanta updated that 51 out of 66 foundations and installation of nine towers out of 64 have been completed.

In 4th SSCM, the committee discussed in line with the direction from CERC (in CERC vide order dated 07.I0.2015 on Petition No. 112/TT'/2013) and decided that the LILO may be removed as the target date fixed by 31st & 32nd TCC/ERPC (i.e. April, 2016) was not adhered to and the same was recommended to SCM.

In 18th SCM, it was decided that decision of 33rd TCC/ERPC will be strictly complied.

TCC may decide.

Deliberation in the TCC meeting

Vedanta updated that 59 out of 66 foundations and installation of ten towers out of 64 have been completed. Vedanta informed that they will commission their dedicated line by November, 2016.

Vedanta pleaded TCC for extension of dead line for removal of LILO till November, 2016 as a last extension.

Some members of TCC felt Vedanta to give an undertaking in affidavit form to CTU and ERPC stating that the dedicated line will be completed by 30.11.2016. Failing which, CTU/ERLDC are authorized to open the LILO with effect from 01.12.2016. No further discussion would be done in ERPC forum on extension/disconnection of LILO after 01.12.2016.

Some members of TCC however, were of the view that sufficient extension has already been given to Vedanta and Vedanta failed to comply. Therefore the LILO should be opened immediately. MS, ERPC informed that CERC has given order to remove LILO connections within 6 months of date of synchronisation and Vedanta had taken more than 5 years.

TCC referred the issue to ERPC for further decision with the following options:

1. *The LILO may be removed immediately as the target date fixed by 31st & 32nd TCC/ERPC (i.e. April, 2016) was not adhered to by Vedanta.*
2. *Vedanta to give an undertaking in affidavit form to CTU and ERPC stating that the dedicated line will be completed by 30.11.2016. Failing which, CTU/ERLDC are authorized to open the LILO with effect from 01.12.2016. No further discussion would be done in ERPC forum on extension/disconnection of LILO after 01.12.2016*

ERPC may decide.

ITEM NO. B5:	**Status of construction of Chuzachen bay at Rangpo S/s.**

Construction of bays at Rangpo S/s meant for evacuation of power from Chuzachen has been undertaken by Department of Power, Govt of Sikkim, under consultancy with Powergrid.

Subsequently MoU was signed between Sikkim and Powergrid in April, 2015 for this work.

The progress made on this issue has been deliberated upon in several OCC and TCC/ERPC forums.

In 32nd TCC, Sikkim informed that the cost estimate from Powergrid was received recently and therefore after studying the same tendering will be done tentatively within a month.

TCC advised Sikkim to expedite the tendering work.

In 122nd OCC held on 9.6.16 and in 18th SCM Sikkim informed that tendering work is in final shape and December'17 is fixed as tentative date completion of the work.

In regard to the importance of the project Sikkim should strictly adhere to a roadmap.

Sikkim may place the roadmap. TCC may advise.

Deliberation in the TCC meeting

Sikkim informed that they will float the tender within a week and December, 2017 is fixed as tentative date for completion of the work.

TCC felt that Sikkim is not serious about construction of the bay and advised Sikkim to take positive action to complete the construction within the target date concerning the importance of the project.

Sikkim informed that they have requested PGCIL for some modifications in tender documents, therefore it may take some more time. CE(PSP), CEA observed that Sikkim should take initiative to get the work done in coordination with other parties.

TCC advised Sikkim to place the road map for construction of the bay in ERPC meeting tomorrow.

Sikkim may update.

ITEM NO. B6:	Status of construction of 400 kV Ind-Barath-Jharsuguda D/C line.

In 122nd OCC, IBEUL updated the status as follows:

- All the 125 towers foundations have been completed and 125 have been erected.
- Due to route alignment one tower (i.e. 126th tower) has been increased which is under construction.
- Stringing work of 36.81 km out of 39.74 km line has been completed.
- The bay work at 400 kV Jharsuguda (Kenapalli) S/s has also been completed.
- The line will be commissioned by 30th June, 2016.

In 4th SSCM, the committee discussed in line with the direction from CERC (in CERC vide order dated 07.I0.2015 on Petition No. 112/TT'/2013) and decided that the LILO may be removed if the target (i.e. June, 2016) was not adhered to and the same was recommended to SCM.

In 18th SCM, IBEUL assured that dedicated line will be completed by July'16.

IBEUL may update.

Deliberation in the TCC meeting

TCC decided that in line with the direction from CERC (in CERC vide order dated 07.I0.2015 on Petition No. 112/TT'/2013) the LILO may be removed if the target (i.e. July, 2016) was not adhered by Ind-Barath.

ERPC may guide.

ITEM NO. B7:	Status of 132kV Rihand-Sonenagar D/C Line

JUSNL vide letter dated 01.06.2016 intimated that the old 132kV Rihand-Sonenagar D/C T/L has been configured after creation of Jharkhand under mutual understanding of both the state of Bihar and Jharkhand in the following manner:

1. 132kV Rihand-Sonenagar Ckt-I is feeding power directly to Sonenagar but being maintained by JUSNL.

2. 132kV Rihand-Sonenagar Ckt-II has been made LILO at Garhwa and Japla and presently the T/L is in three segments i.e. 132kV Rihand-Garhwa S/C, 132kV Garhwa –Japla S/C and 132kV Japla-Sonnenagar S/C.

132kV Rihand-Sonenagar Ckt-I remains virtually idle charged for most of the time but maintenance is done by JUSNL because of being on the same tower. Palamu region of Jharkhand is solely dependent on Rihand and Sonenagar for getting power for Railway Traction & Distribution power for consumers. Right now Sonenagar (BSPTCL) has restricted power on account of mishappening of collapse of 9 towers.

Therefore, JUSNL through SLDC has placed the following proposal for sake of welfare of the state and in larger interest of uninterrupted, reliable power for railway traction (20-25MW).

1. The old double ckt of 132kV Rihand-Sonenagar T/L will be taken over by JUSNL because it is passing through the geographical area of Jharkhand (90% of the stretch of length) and is being maintained by JUSNL.
2. The 132kV Rihand-Sonenagar Ckt (Ckt-I) shall be LILO like Ckt-II at Garhwa & Japla and middle segment of the said T/L shall be connected to Garhwa and Japla. This will facilitate reliability of circuit and help in carrying out regular maintenance work.
3. Whenever BSPTCL will need emergency power, same may be extended from Japla to Sonenagar on as and when required basis.
4. In near future Garhwa G/S/S is going to be connected to 132kV G/S/S Daltonganj and adequate power from Ranchi may be extended in the Palamu region. At that time we will be in a position to extend power from Japla to Sonenagar on as and when required basis as presently is being fulfilled through 132 kV Rihand –Sonenagar Ckt-I.

In 122nd OCC, Member Secretary, ERPC informed that the issue has been discussed in 4th SSCM meeting and, BSPTCL agreed to communicate their views.

On receipt of comments from BSPTCL, the issue needs deliberation before TCC.

BSPTCL may update. Members may discuss.

Deliberation in the TCC meeting

BSPTCL informed that they are using 132kV Rihand-Sonenagar Ckt-I for feeding Railway supply during emergencies. The reliability of railway supply will be affected, if the line LILO at 132kV Garhwa & Japla.

TCC advised BSPTCL and JUSNL to resolve the issue bilaterally and place in next OCC if required.

ERPC may note.

ITEM NO. B8:	Status of PLCC system installed in Eastern Region

a) Restoration of PLCC system of important lines of JUSNL

In 119th OCC, JUSNL informed that the following:

i) In 220 KV Chandil –Ramchandrapur line auto-reclosure has been enabled and linked with PLCC panels on 09.03.16.
ii) In 220 KV Chandil –Ranchi line auto-reclosure has been enabled and termination done in PLCC panels (Auto-reclosure will be in service after testing of PLCC scheduled on 22.03.16)
iii) In 220 KV Chandil –Santaldih line auto-reclosure has been enabled and termination done in PLCC panels at Chandil end but due to non-availability of PLCC panels at Santaldih(WBPDCL) end the A/R and PLCC scheme could not be activated.
iv) In 220 KV Ramchandrapur-Joda line auto-reclosure has been enabled and termination done in PLCC panels at Ramchandrapur end but due to non-availability of PLCC panels at Joda (OPTCL) end the A/R and PLCC scheme could not be implemented.

Further, it was informed that JUSNL is ready to share their standby PLCC panels (BPL make) with WBPDCL (for Snataldih end) and OPTCL (for Joda end) to complete the PLCC schemes of both the above lines.

OCC advised WBPDCL and OPTCL to accept the JUSNL offer and implement the PLCC scheme at the earliest for both the 220 kV lines.

Subsequently, JUSNL vide letter dated 13.04.2016 has asked for consent of OPTCL and WBPDCL for cost estimate details for further needful action.

In 120th OCC, WBPDCL informed that they are in receipt of the JUSNL letter and the decision of their higher authority will be communicated soon.

OPTCL informed that they have some queries regarding the AMC of the PLCC panels as these were purchased in 2006. They will communicate their queries to JUSNL.

OPTCL vide letter dated 30.04.16 has communicated JUSNL that the PLCC set should be commissioned & under AMC of the manufacturer for trouble free and reliable service.

In 121st OCC meeting, JUSNL was advised to respond to the queries of OPTCL and WBPDCL at the earliest.

In 122nd OCC, WBPDCL informed that they will commission the autoreclose feature at 220kV Santaldih with implementation of SAS which is under process.

Member Secretary clarified that the issue of activation PLCC in JUSNL is very seriously taken by CERC. So in view of that other end like Joda of OPTCL & Santaldih of WB need to be restored with utmost care.

Therefore, OCC advised JUSNL, OPTCL and WBPDCL to restore the PLCC system at Joda and Santaldih at the earliest with mutual coordination.

JUSNL, OPTCL and WBPDCL may update.

Deliberation in the TCC meeting

ERPC Secretariat informed that section 142 on JUSNL is not yet withdrawn and has been deferred by six months on request of ERPC. As JUSNL had informed that the commissioning of PLCC is held up due to non-availability of PLCC system at other end (OPTCL and WBPDCL), CERC may impose penal provision on OPTCL and WBPDCL for the same.

JUSNL informed that they are ready to share their standby PLCC panels (BPL make) at book value with WBPDCL (for Santaldih end) and OPTCL (for Joda end) to complete the PLCC schemes of both the above lines.

WBPDCL and OPTCL informed that the panels are 2006 manufacture and not used till date. The panels may not work properly therefore JUSNL should take care of the AMC for these panels.

JUSNL did not agree to the AMC of these panels.

OPTCL and WBPDCL informed that purchase of new panels would take minimum 6 month time.

TCC felt that CERC dead line could be met only with the existing panels offered by JUSNL or any other matching panels available with OPTCL and WBPDCL.

TCC advised JUSNL, OPTCL and WBPDCL to discuss the issues bilaterally and restore the PLCC system by July 2016 positively.

ERPC may guide.

b) Restoration of PLCC system of important lines of OPTCL, WBSETCL and BSPTCL

OPTCL vide mail dated 16.03.2016 informed the PLCC communication status of the important links under OPTCL as follows:

1. Jeypore(PG)-Jayanagar (Commn. in OPGW exists)
2. Rourkela(PG)-Tarkera (Commn. in OPGW exists)
3. Rengali(PG)-Rengali S/Y (Proposal for Commn. in OPGW is pending)
4.Indravati(PG)-Indravati(PH) (Proposal for Commn. in OPGW pending)
5.Baripada(PG)-Baripada (Tendering in Progress for OPGW)
6.Baripada(PG)-Rairangpur (Tendering in Progress for OPGW)

OCC advised BSPTCL and WBSETCL to place their roadmap.

BSPTCL and WBSETCL may place their roadmap for restoration of PLCC for important lines using their own resources.

Deliberation in the TCC meeting

It was informed that PLCC of the following lines needs to be installed:

WBSETCL system:

- *132kV Siliguri-NBU S/C line*
- *132kV Siliguri-NJP S/C line*
- *132kV Malda (WB)-Malda(PG) D/C line*
- *132kV Birpara(WB)-Birpara(PG) D/C line*

BSPTCL system

- *220kV Patna-Fatua S/C line*

- *220kV Patna-Khagul S/C line*
- *220kV Gaya-Dehri D/C line*
- *220kV Gaya-Bodhgaya D/C line*

TCC advised BSPTCL and WBSETCL to place the roadmap in ERPC meeting tomorrow for restoration PLCC system.

BSPTCL and WBSETCL may place the roadmap.

ITEM NO. B9:	Submission of detailed disturbance report for PCC Meeting

Constituents of Eastern Region on many occasions in the recent past have failed to provide requisite data and detailed timely report with DR., EL etc. to ERPC/ERLDC for disturbances in respective control area. Thereby PCC faced immense difficulties in meaningful analysis and concluding the incidences with remedial actions/suggestions for system improvement. As a result time and again same type of disturbances are plaugeing the grid. This is a serious concern for the eastern grid.

The issue was discussed earlier also in many TCC and ERPC meetings. But situation did not change. Till recently in PCC meetings disturbances are presented in a lackluture way---without SLD, without DR without proper relay details etc. This is a gross violation of IEGC. .

Therefore PCC in its last meeting (44th) held on 8.6.16 decided that from now onwards for all the disturbances constituents should submit a detailed disturbance report, at least 10 days before PCC meeting, containg the following information:

- ***Single line diagram of the affected area/region***
- ***Pre fault conditions***
- ***Tripping incident details with proper relay indication***
- ***Disturbance record***
- ***Analysis of the tripping incident***
- ***Conclusion***
- ***Remedial measures taken***

These reports will be placed as agenda item of PCC meeting along with further queries by ERPC/ERLDC, if any.

Subsequently in PCC meeting concerned constituents have to place their incidences with all details.

Non compliance of the above mentioned PCC decision will be taken a violation of clause 5.9 of IEGC and will be accordingly reported to CERC

Moreover even after repeated advice from TCC/ERPC, representatives from SLDCs are still not attending PCC meeting in most of the cases.

Considering the gravity of the situation TCC may advice.

Deliberation in the TCC meeting

Chairperson, TCC opined that unfortunately operators focus on restoration of the line during tripping incidences rather than analysing and taking corrective measures. Therefore, constituents should develop an internal mechanism for detailed analysis of the tripping incidences.

TCC felt that submission of above details is very important for fruitful discussion in PCC meeting and arriving at a conclusion. This will help in improving the reliability of the protection system. Only Eastern Region is connected with all the other regions in India and inter-nationally therefore, it is important to maintain the reliability of the transmission network for safe evacuation of power between the regions.

CEA appreciated that the Eastern Region is conducting PCC meetings on monthly basis and informed that power system protection plays a vital role in maintaining the reliability of the grid. The same has been emphasized by the Grid Enquiry Committee on 2012 India Grid Disturbances. Now Govt. of India is granting funds to upgrade the protection system.

After detailed deliberation, TCC decided that all constituents should take serious actions to send the requisite information as bulleted in agenda to ERPC/ERLDC in time. TCC decided that non submission of requisite information will be treated as non-compliance of clause 5.9 of IEGC and will be accordingly reported to CERC.

TCC also advised all constituents to send their SLDC personnel along with concerned officer from protection division to attend the monthly PCC in ERPC.

TCC referred the issue to ERPC for further guidance.

ITEM NO. B10:	**Disturbance in Odisha System**

B.10.1: Total power failure at 400/220kV Mendhasal S/s of OPTCL System on 06-05-16 at 14:13 hrs.

At 14:13 hrs, 400 kV Mendasal – New Duburi tripped from both end on zone 1 distance protection due to B-G fault.
Distance protection of 400 kV Mendasal - Baripada at Mendasal end also sensed the fault & line tripped from Mendasal end only.

At same time, contact of the backup relay (SIEMENS, 7SJ62) of ICT provided for overload alarm got activated which led to operation of LBB.

220 kV Bhanjanagar – Mendasal S/c line also tripped from Bhanjanagar end on distance protection.

Relay indications are as follows:

Time	**Name**	**Local end**	**Remote end**
14:13 hrs	400/220kV , 315 MVA ICT-I & II at Mendhasal	On 400 kV side – Y Ph, B Ph, E/F, LBB On 220 kV side – E/F	
	400 kV Mendasal - New Duburi	<u>At Mendasal</u> D/P, Z-I, Dist – 94.5 km. 4.2 kA	<u>At New Duburi</u> B-N Z-I, F/C 3.467 kA

	400 kV Mendasal - Baripada	<u>At Mendasal</u> D/P, B-N, Dist – (-149.8 km) and distance protection	<u>At Baripada</u> Did not trip
	220 kV Bhanjanagar – Mendasal	<u>At Mendhasal</u> Did not trip	<u>At Bhanjanagar</u> D/P dist = 246.53 km, IA=892A, IB=946A, IC=943A

Analysis of PMU plots:

- From the Talcher PMU plot, approx. 12kV voltage dip has been observed in B phase at 14:13:00 hrs.
- Fault clearance time was approx. 680 ms.

In 44th PCC, OPTCL explained that

- There was a B-N fault in 400 kV Mendasal - New Duburi line and New Duburi end tripped on Zone 1 B-Phase Earth fault. Fault current was 3.46 kA.
- However, Mendasal end distance protection identified as power swing and issued trip command to CB after 600 ms. OPTCL has placed the DR record of the relay.
- Because of delayed fault clearance from Mendasal end, over load alarm at 90% of full load for both 315 MVA, 400/220kV ICTs activated and initiated LBB protection.
- LBB protection tripped both ICTs and 400 kV Mendasal – Baripada line which were connected to bus-II.
- Regarding LBB operation, OPTCL explained that after the incidence of 12.04.16, they have implemented a over load alarm for both 315 MVA, 400/220kV ICTs at 90% of the full load. But the logic was inadvertently initiating LBB protection for both the ICTs.
- OPTCL confirmed that the logic has been removed on 6th May 2016 and they will install separate relay for over load alarm within a month.
- 220 kV Bhanjanagar – Mendasal line tripped from Bhanjanagar end on distance protection due to over load.

Powergrid informed that 400 kV Mendasal - Baripada line tripped from Baripada end on zone 2 distance protection.

PCC advised OPTCL to check the distance relay of 400 kV Mendasal - New Duburi line at Mendasal end and 220 kV Bhanjanagar – Mendasal line at Bhanjanagar end.

OPTCL may update.

Deliberation in the TCC meeting

It was informed that OPTCL has submitted a report.

TCC advised OPTCL and PGCIL to check the distance relay of 400 kV Mendasal - New Duburi line at Mendasal end as it identified B-N fault as power swing and issued trip command to CB after 600 ms.

ERPC may note.

B.10.2: Disturbance at 400/220kV Mendhasal S/s of OPTCL System on 23-05-16 at 17:20 hrs.

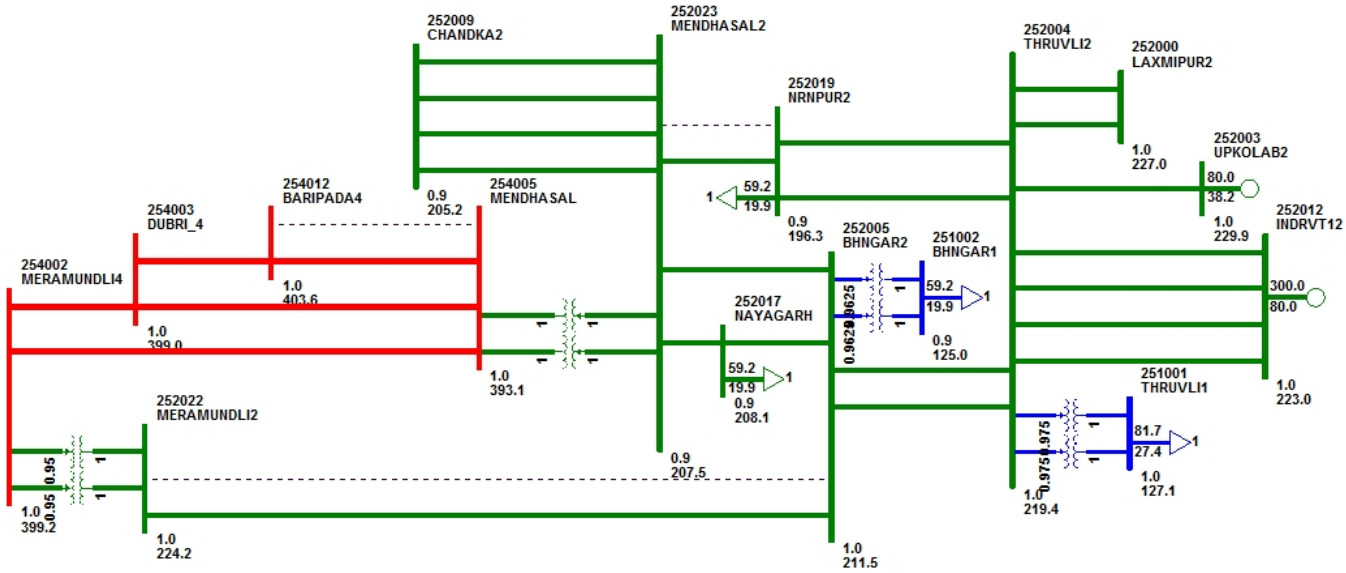
At 17:20 hrs, 400kV Meeramandali- Mendhasal S/c tripped from both end on indication of DP, R-Ph, E/F, Zn-I at Mendhasal end due to tower damage at Loc. No 180, 181 & 182 (near to Mendhasal end i.e 45 KM) because of strong wind.

400kV Meeramandali-New Duburi D/c were out of service due to tower collapse.

At 17:28 hrs, 400kV Mendhasal- Baripada S/c line tripped from Mendhasal end on zone 1 distance protection, B-Ph, Zone I and carrier send to Baripada end.

At 17:28 hrs, 400kV Mendhasal- New Duburi S/c line tripped on overvoltage from Mendhasal end.

After tripping of above mentioned lines MW flow on both 315 MVA ICTs at Mendhasal & New Duburi became zero.



Relay indications are as follows:

Time	Name	Local end	Remote end
17:20 hrs	400kV Mendhasal-Meeramandali S/c	At Mendhasal DP, R-Ph, E/F, Z-I, F.D- 45 KM (tower Collapsed)	At Meeramandali Tripped
17:28 hrs	400kV Mendhasal-Baripada S/c	At Mendhasal DP, B-Ph, Z-I, F.D- 23.8 KM, Carrier send	At Baripada Tripped
17:51 hrs	400kV Mendhasal-N.Duburi S/c	At Mendhasal O/V	At N.Duburi Did Not Trip

Analysis of PMU plots:

- From the Rengali PMU plot, approx. 15 kV voltage dip has been observed in R-Ph phase at 17:20:18 hrs.
- At 17:29:05 hrs, 4 kV voltage dip has been observed in B-Ph.
- Fault clearance time in both the incident was approx. 80 ms.

In 44th PCC, OPTCL explained that

- At 17:20 hrs, there was a R-N fault in 400 kV Mendasal - Meramundali line and Mendasal end tripped on Zone 1 R-Phase Earth fault.
- Meramundali end tripped on zone 1, R-N fault and fault distance was 76 km from Meramundali end.
- At 17:28 hrs, there was another R-N fault in 400kV Mendhasal- Baripada S/c and Mendasal end tripped on Zone 1 and carrier inter trip has been sent to Baripada end.
- However, carrier inter trip was not received at Baripada and Baripada end tripped on zone 2, R-N fault, the fault distance was 35.5 km.
- Thereafter over voltage observed at 400 kV Mendasal S/s because of load thrown off and 400kV Mendhasal- N.Duburi S/c line tripped from Mendhasal end on Stage-1 over voltage.

PCC advised OPTCL and Powergrid (Odisa) to check the PLCC of 400kV Mendhasal- Baripada S/c line.

OPTCL may update.

Deliberation in the TCC meeting

Powergrid (Odisha) informed that BPL make PLCC system is not performing well for long transmission lines and they will shift these panels to other shorter lines. They will implement digital PLCC system in 400kV Mendhasal- Baripada S/c line to improve the reliability. However, they are not getting shutdown for this work from OPTCL.

PGCIL informed that they are also not getting shutdown for intra-state lines for which they have to implement digital PLCC system.

TCC advised OPTCL and PGCIL to resolve the issues bilaterally after the meeting and place the outcome in ERPC meeting tomorrow.

PGCIL and OPTCL may update.

OPTCL and Powergrid (Odisha) pointed out that because of some mutual co-ordination problem many issues related to O&M of line, bays and equipments available in OPTCL, OHPC and Powergrid sub-stations are not getting properly addressed.

In order to resolve these pending issues PCC advised Member Secretary to have joint interaction with OPTCL/GRIDCO and Powergrid (Odisha) at Bhubaneswar on 17.6.16 during the course of workshop on "Emerging Issues in Power Sector" jointly organized by ERPC, ERLDC and Gridco at Bhubaneswar on 17-18/6/2016.

OPTCL & PGCIL may update.

Deliberation in the TCC meeting

It was informed by MS, ERPC that joint meeting with OPTCL, OHPC, GRIDCO and Powergrid (Odisha) was held at Bhubaneswar on 17.6.16 during the course of workshop on "Emerging Issues in Power Sector".

Minutes of the meeting already circulated.

TCC advised OPTCL, OHPC, GRIDCO and Powergrid (Odisha) to effectively follow the decision taken in the meeting.

Odisha and PGCIL agreed to the same.

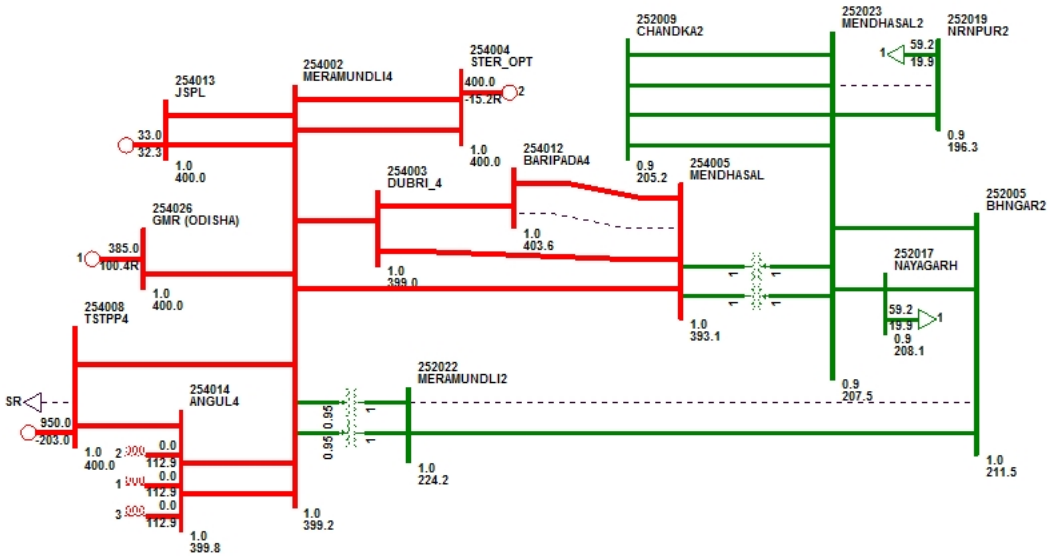
ERPC may note.

B.10.3: Multiple elements tripping in OPTCL system on 25-05-16 at 15:20 hrs.

At 15:20 hrs, the following lines were tripped due to inclement weather condition:

- 400kV Mendhasal- Baripada S/c tripped from Baripada end on indication B-Ph, E/F, Z-I & R-Y-B –Ph
- 400kV New Duburi- Mendhasal S/c tripped from New Duburi end on Z-III distance protection.
- 220kV Mendhasal-Nayagarh S/c tripped from Nayagarh end on operation of Y-Ph O/C relay.

At 15:43 hrs, 400kV New Duburi- Baripada S/c line was tripped from Baripada end only on distance protection.



Relay indications are as follows:

Time	Name	Local end	Remote end
15:20	400kV Mendhasal-Baripada S/c	<u>At Mendhasal</u> Did Not Trip	<u>At Baripada</u> B-Ph , E/F, Z-I
	400kV Mendhasal-N.Duburi S/c	<u>At Mendhasal</u>	<u>At N.Duburi</u> DP, R-Ph, Y-Ph, B-Ph, F.D-152.5kM , Zn-III
	220kV Nayagarh-Mendhasal	<u>At Nayagarh</u> Y-Ph , O/C	<u>At Mendhasal</u> Did Not Trip

15:43	400kV N.Duburi-Baripada S/c	Tripped from Baripada end only on DP

Analysis of PMU plots:

- From the Rourkela PMU plot, approx. 6 kV voltage dip has been observed in B-Ph phase at 15:20:20 hrs. And after 1 sec i.e 15:20:21 hrs further 6kV voltage dip has been observed in B-Ph.
- Fault clearance time in both the incident was approx. 80 ms.

In 44th PCC, OPTCL explained that there was a transient B-N fault in 400kV Mendhasal-Baripada S/c line and Mendasal end tripped on zone 1 protection and successfully auto reclosed.

However, Baripada end tripped on zone 1, B-N fault and auto recloser attempted but failed due to permanent fault as intimated by Powergrid (Odisha).

OPTCL informed that 220kV Nayagarh-Mendhasal line tripped from Nayagarh end on over current protection due to over load.

400kV New Duburi- Baripada S/c line tripped from Baripada end as direct trip received from New Duburi end due to spurious signal initiated from New Duburi end.

OPTCL failed to explain the tripping of 400kV Mendhasal-New Duburi S/c line from New Duburi end on zone 3 distance protection and informed that disturbance record is yet to be collected.

PCC felt that without complete information i.e. DR of N. Duburi and detail analysis from OPTCL the tripping incidence could not be analyzed. Therefore, PCC advised OPTCL to place the detail analysis of the event in 33rd TCC Meeting.

OPTCL may place.

Deliberation in the TCC meeting

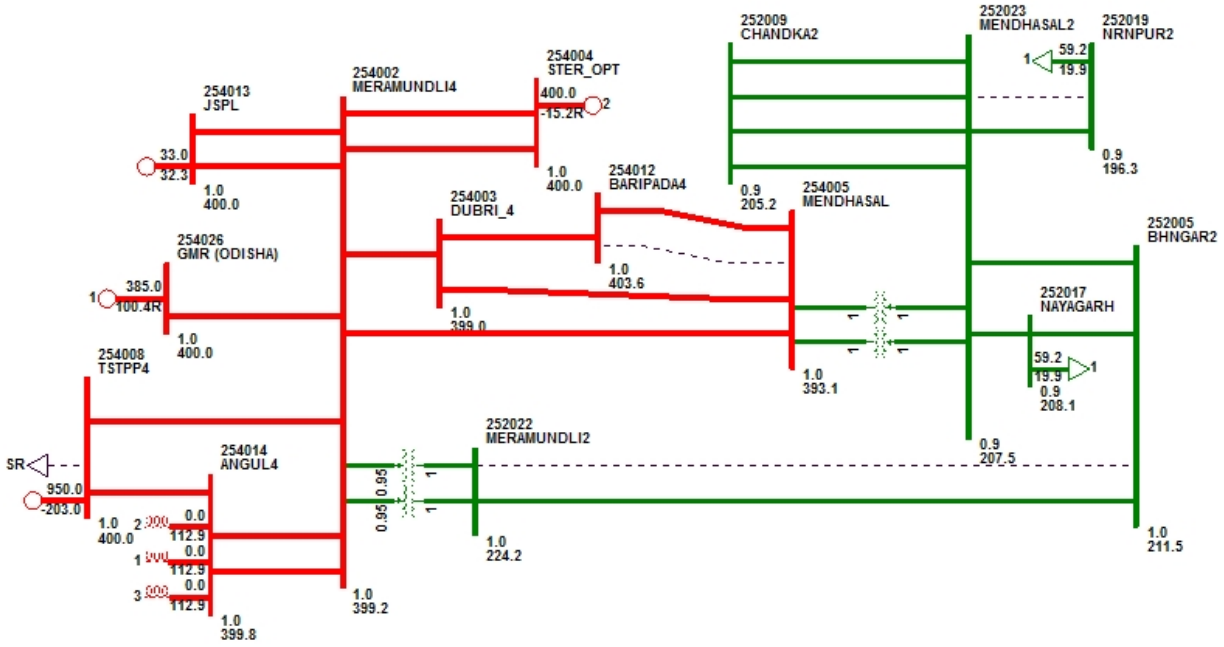
OPTCL informed that DR has been collected.

OPTCL informed that 400kV Mendhasal-New Duburi S/c line will be LILO at Pandiabil and the protection settings will be reviewed accordingly.

TCC advised OPTCL to explain the tripping incidence in PCC meeting.

B.10.4: Disturbance in OPTCL System on 10-05-16 at 15:39-16:44 hrs.

On 10.05.16, at 15:39 hrs to 16:44 hrs, multiple elements tripped in PGCIL, Orissa, GMR & JITPL substation due to inclement weather condition in Orissa. The following sequence of incidents were observed:



At 15:39 hrs:
400kV Talcher- Angul S/c tripped from both ends on SLG (i.e B-N) fault.

Simultaneously, 220kV Meeramandali- Bhanjanagar-II & 220kV Meeramandali- TTPS-II tripped from Meeramandali end on indication of B-N fault.

400/220kV 315 MVA ICT-I at Meeramandali was also tripped from LV (i.e.220kV side) due to actuation of overcurrent protection.

At 15:43 hrs:
400kV lines emanating from Meeramandali S/s such as Meeramandali- Angul D/C & Meeramandali- Sterlite -I tripped from both end due to occurrence of SLG (i.e B-N) fault. However, Meeramandali- Sterlite Ckt-II tripped from Sterlite end only.

400kV Meeramandali- Angul Ckt-I & II were successfully normalized at 16:03 hrs & 16:18 hrs respectively.

At 15:54 hrs:
400kV Meeramandali- N.Duburi- Ckt-I & II tripped from Meeramandali end on indication of Y-N & B-N fault respectively.

At 16:05 hrs:
400kV GMR- Angul-II tripped due to transient SLG (i.e R-N) fault and autorecloser operation was successful at both ends.

However, R-Ph current of 400kV GMR- Angul-II was very high (10kAmp), while R-Ph voltage reduced to 101kV (Phase to neutral) and zero sequence current raised to 12 KA. Hence GT#2 tripped (as zero sequence current reaches more that the setting value).
Subsequently arc was observed in line isolator contact of the 400kV GMR- Angul-II line. GMR manually opened the 400kV GMR- Angul-Ckt-II as a preventive measure while breaker at Angul end tripped after receiving the DT from GMR end.

At 16:44 hrs:

400kV Meeramandali- N.Duburi D/C tower collapsed at loc. No- 8/0 ,8/1 & 8/2 due to tornado.

Charging attempt of 400kV Meeramandali- N.Duburi Ckt-I was taken at Meeramandali end but line tripped on indication of DP and simultaneously LBB protection had initiated at Meeramandali S/s.

All the elements connected to 400kV main bus- I at Meeramandali tripped from local end. GMR running U#3 connected to Odisha system had also tripped.

Heavy voltage dip was observed at 400kV GMR & JITPL bus and caused tripping of GT of JITPL U#1 & GMR U #1 due to unit auxiliaries tripping.

Relay indications are as follows:

S.No	Elements Tripping	Local End	Remote End
15:39 hrs	400kV Talcher- Angul S/c	At Talcher B Phase E/F ,DP	At Angul Z-1, F.D-15.41 KM,F.C-16.6 KA
	220kV Meeramandali-Bhanjanagar-I	At Meeramandali B-Ph to E/F, F.D- 4.774 KM	At Bhanjanagar Did Not Tripped
	220kV TTPS-Meeramandali- II	At Meeramandali B-Ph to E/F, F.D- 8.50 KM	At TTPS NA
	315 MVA ICT-I at Meeramandali	Tripped from 220kV side on O/C	
15:43 hrs	400kV Meeramandali-Angul-I	At Meeramandali B-N fault, F.D- 59.4 KM	At Angul NA
	400kV Meeramandali-Angul-II	At Meeramandali B-N fault, F.D- 6.0 KM	At Angul NA
	400kV Meeramandali-SEL-I	At Meeramandali B-N fault, F.D- 2.0 KM	At SEL NA
	400kV Meeramandali-SEL-II	At Meeramandali Did Not Tripped	At SEL Tripped
15:54 hrs	400kV Meeramandali-N.Duburi-I	At Meeramandali Y-Ph to E/F, F.D- 12.5 KM	At N.Duburi NA
	400kV Meeramandali-N.Duburi-II	At Meeramandali B-N fault, F.D- 59.2 KM	At N.Duburi NA
16:05 hrs	400kV GMR –Angul-II	At GMR R-N fault, AR successful (manually opened)	At Angul R-N fault, AR successful (tripped due to DT received)
	GMR U #2	Tripped due to auxiliary tripped	
16:44 hrs	400kV Meeramandali-N.Duburi-I	At Meeramandali DP. F.D- 3.9 KM	At N.Duburi NA
	400kV SEL-II	Tripped on LBB	
	400kV Mendhasal-Meeramandali S/c		
	400kV Angul Ckt-		

	Meeramandali -II	
	400kV JSPL-Meeramandali Ckt-I	
	315 MVA ICT-I	
	400kV GMR-Meeramandali Ckt-I	
	GMR U#3	
	GMR U#1	Tripped due to Failure of auxiliary
	JITPL U #1	Tripped due to Failure of auxiliary

Analysis of PMU plots:

At 15:39 hrs

- From the Rengali PMU plot, approx. 55kV voltage dip has been observed in B-Ph at 15:39:44 hrs.
- Fault clearance time was approx. 80 ms.

At 15:43 hrs

- From the Rengali PMU plot, approx. 55kV voltage dip has been observed in B-Ph at 15:43 hrs. And after 1000 ms successful Autorecloser operation was observed but within 25 ms (i.e Reclaim time) further dip was observed in B-Ph.
- Fault clearance time was approx. 80 ms.

At 16:05 hrs

- From the Rengali PMU plot, approx. 20kV voltage dip has been observed in R-Ph at 16:05:23 hrs.
- Fault clearance time was approx. 80 ms.

At 16:44 hrs

- From the Rengali PMU plot, approx. 140 kV voltage dip has been observed in R,Y & B-Ph at 16:44:13 hrs.
- Fault clearance time was approx.280 ms.

In 44th PCC, Powergrid and OPTCL explained that

At 15:39 hrs

Powergrid (Odisha) explained that there was a B-N fault in 400kV Talcher- Angul S/c line and the fault got cleared from Talcher and Angul end on zone 1 distance protection after unsuccessful auto reclose operation.

OPTCL explained that there was another B-N fault in 220kV TTPS- Meeramandali line - II due to jumper snapping and Meramundali end tripped on Earth fault protection. However, both 220kV TTPS- Meeramandali line - I & II tripped from TTPS end on E/F protection.

OPTCL explained that the tripping of 220kV Meeramandali- Bhanjanagar-I from Meramundali end and tripping of 315 MVA ICT-I at Meeramandali was due to overload on overcurrent protection.

At 15:43 hrs

Powergrid (Odisha) explained that there was B-N fault in 400kV Meeramandali- Angul-II and Angul end tripped on zone 1, B-N fault.

OPTCL informed that 400kV Meeramandali- Angul-I & II tripped from Meramundali end on Zone 1, B-N fault.

OPTCL explained that there was another fault in 400kV Meeramundali-Sterlite line I and Meramundali end tripped on zone 1, B-N fault. However, 400kV Meeramundali-Sterlite line I & II tripped from Sterlite end as both lines were charged through one main & tie CB due to incomplete dia.

PCC could not conclude the tripping incidences due to non-availability of detail report and therefore, advised OPTCL to place the detail analysis in 33rd TCC Meeting.

OPTCL may place.

Deliberation in the TCC meeting

It was informed that OPTCL has submitted the relevant details to ERPC Secretariat.

ERLDC informed that heavy voltage dip was observed at 16:05 hrs at 400kV GMR & JITPL bus and caused tripping of GT of JITPL U#1 & GMR U #1 due to unit auxiliaries tripping. This may be due to delayed/non-clearance of fault in the system.

TCC advised OPTCL, NTPC, GMR and JITPL to explain the disturbance in next PCC meeting.

Regarding charging of 400kV Meramundali-Vedanta line I&II through one main & tie CB from Vedanta end due to incomplete dia, TCC felt that this is violation of CEA regulations.

Vedanta informed that bay extension work is in progress and dia would complete by November, 2016. TCC advised the Secretariat to review the progress in monthly OCC meetings.

CEA advised Vedanta to submit the SLD of the switchyard.

ITEM NO. B11:	**Repeated disturbances in OPTCL System at Mendhasal and Meramundali area**

For the last few months, system disturbances in the EHV network of OPTCL are occurring frequently. These disturbances are mostly related to protection system mis-operation at Meramundali and Mendhasal S/Stns. Some of the instances of disturbance are :

1. Total power failure at 400/220kV Mendhasal S/s of OPTCL System on 12-04-16 at 14:04 hrs.
2. Disturbance at 400/220kV Mendhasal S/s of OPTCL System on 16-04-16 at 09:55 hrs.
3. Total power failure at 400/220kV Mendhasal S/s of OPTCL System on 26-04-16 at 14:48 hrs.
4. Multiple elements tripping at 400kV Meeramandali of OPTCL system on 30-04-16 at 22:02hrs.

5. Total power failure at 400/220kV Mendhasal S/s of OPTCL System on 06-05-16 at 14:13 hrs.
6. Multiple elements tripping at 400/220kV Meeramandali S/s of OPTCL System on 10-05-16 at 15:39-16:44 hrs
7. Total power failure at 400/220kV Mendhasal S/s of OPTCL System on 23-05-16 at 17:20 hrs.
8. Multiple elements tripping in 400/220kV Meeramandali&Mendhasal S/s of OPTCL System on 25-05-16 at 15:20 hrs.

In the past, CERC vide its order on 59/MP/2014 had directed OPTCL to engage an independent third party, preferably CPRI, to undertake afresh a complete audit of OPTCL transmission system as per checklist specified by report of Task Force on Power System Analysis under Contingency OPTCL was further advised to ensure that all the findings of protection audit by CPRI are addressed and rectifications are completed as expeditiously as possible.
As per the Commission‟s direction, OPTCL had engaged CPRI to undertake complete audit of OPTCL transmission system.

Considering audit observations made by CPRI OPTCL is to devise a suitable inter-tripping schemes to avoid occurrence of wide-spread disturbances in the event of loss of heavily loaded transmission elements without redundancy, as an interim measure and to furnish a time-bound plan for rectification of its protection system shortcomings and

OPTCL may update. TCC may guide.

Deliberation in the TCC meeting

It was informed that OPTCL has submitted the report to ERPC Secretariat.

ERLDC informed that around 40% of the tripping incidences in ER are in Odisha network during last 6 months specifically in around 400kV Mendhasal and Meramundali.

TCC advised OPTCL to take appropriate actions to reduce the disturbances in Odisha system.

ERPC may note.

ITEM NO. B12:	Protection Committee visit to BSPTCL and JUSNL Sub-stations

In view of repeated uncoordinated trippings in BSPTCL and JUSNL systems, 31st TCC/ERPC formed a committee of following protection engineers to review the situation:

- Shri Sabyasachi Roy, ACE, WBSETCL,
- Shri L Nayak, GM, OPTCL
- Shri Jayanta Datta, SE, DVC
- Shri Surajit Bannerjee Asst GM, ERLDC,
- Shri Jiten Das, Asst GM, PGCIL
- Shri S. B. Prasad, ESE, BSPTCL
- Shri Vidyasagar Singh, ESE, JUSNL

PCC decided that the protection committee members will carry out the site visit of JUSNL substations during 11th to 14th May, 2016 to review the protection system in respect of Chandil, Ramchandrapur, Adityapur and adjoining substations.

In 43rd PCC, it was informed that the Protection team has visited 220/132 kV Chandil S/s, Ramchandrapur & 132/33 kV Adityapur of JUSNL from 11th to 12th May, 2016.

A special meeting was held on 08.06.16 to discuss the observations of the site visit of Chandil, Ramchandrapur, Adityapur & adjoining substations by ERPC team. In the meeting it was emphasized that the distance protection along with the back-up protection of JUSNL system (comprising of 220kV Ramchandrapur, Chandil & Hatia-II and 132 kV Adityapur & Hatia-I) needs to be reviewed for proper protection co-ordination. It was decided that the Protection team will carry out the setting calculations for all the 220 kV & 132 kV lines along with the 220/132 kV ICTs based on the data provided by JUSNL which shall be implemented by JUSNL.

ERPC protection team may place the report

Deliberation in the TCC meeting

Shri Jayanta Dutta, SE, DVC and member of ERPC protection team delivered a brief presentation on outcome of the on-site visit of 220/132 kV Chandil S/s, Ramchandrapur & 132/33 kV Adityapur substations of JUSNL.

It was informed that the final report will be issued by ERPC Secretariat incorporating the relay setting data tentatively by first week of July-16.

TCC advised JUSNL to comply the recommendations given by the ERPC protection team.

JUSNL and Sikkim informed that they need funds for upgradation of protection system. TCC, therefore advised JUSNL and Sikkim to prepare DPR within a month for up gradation of protection system and send to NLDC for PSDF funding with intimation to ERPC Secretariat.

ITEM NO. B13:	**Modification of PDO conditions for HVDC Gajuwaka**

It has been observed that tripping of any line section in 400kV Rengali-Indravati-Jeypore path or 400kV Angul-Bolangir-Jeypore path generally causes voltage oscillations around Jeypore and ultimately leads to a disturbance in S. Odisha system. This leads to difficulty in exporting power to SR through HVDC Gajuwaka in a reliable manner, besides affecting the security of S. Odisha system. Such disturbances particularly occur in low hydro season, due to low fault level around Jeypore during that period. The disturbance which occurred on 10-03-16 from 12:24 hrs to 12:31 hrs is one such example.

It was therefore felt that the existing PDO to reduce power flow through HVDC Gajuwaka, needed a review. Accordingly, modification of PDO conditions for HVDC Gajuwaka was discussed in 31st protection sub-committee meeting held at ERPC,Kolkata on 28.05.2015 (Thursday), and also in 109th OCC Meeting held on 29th May, 2015 at ERPC, Kolkata.

It was decided that a separate meeting with OPTCL, HVDC Powergrid, NLDC, SRLDC, SRPC, ERLDC and ERPC will be convened tentatively in last week of June, 2015 for detail discussion.

However, further progress could not be achieved in this direction.

TCC may therefore kindly advise all concerned entities to review the existing PDO conditions of HVDC Gajuwaka and implement the same at the earliest.

TCC may guide.

Deliberation in the TCC meeting

ERLDC informed that existing PDO to reduce power flow through HVDC Gazuwaka was 10 years old and it needs to be reviewed as per the present network conditions.

After detailed discussion, TCC decided that the issue should be discussed in a separate meeting with OPTCL, HVDC Powergrid, NLDC, SRLDC, SRPC, ERLDC and ERPC.

ITEM NO. B14:	**Transfer capability determination by the states**

In order to ensure, safe and secure operation of the grid, the states should carry out the power system study for operational planning and power transfer capability through their respective transmission links with the rest of the grid. It was decided in the NPC meeting that to begin with, power system study for assessment of operational limits / power transfer capability for each state will be done by the concerned RLDC in association with concerned SLDC. Monthly TTC /ATC will be uploaded by the SLDCs at their respective websites and also communicated to concerned RLDC & NLDC subsequently.

In its 118th meeting, OCC advised Odisha SLDC, WBSLDC, DVC & SLDC, Bihar to upload their monthly TTC/ATC on their website. OCC also advised Jharkhand and Sikkim SLDC to initiate the TTC/ATC computations of their control area in-consultation with ERLDC.

In 120th OCC, DVC informed that they are providing the monthly TTC/ATC on their website.WBSETCL informed that they are calculating the TTC/ATC but their website is under construction. Bihar and OPTCL agreed to implement.

JUSNL informed that they are unable to compute the TTC/ATC for their state.

OCC advised JUSNL to interact with ERLDC to get acquainted with the ATC/TTC calculation.

TCC may kindly advise all load-serving entities of Eastern Region to post their respective import/export TTC figures in their websites on monthly basis, together with underlying assumptions, limiting conditions etc.

Concerned constituents may place their roadmap. TCC may guide.

Deliberation in the TCC meeting

It was informed that all the states are computing TTC/ATC except Sikkim and JUSNL. DVC is calculating and uploading in DVC website. BSPTCL is calculating and uploading through a link in BSPHCL website. WBSLDC is calculating but they could not upload due to non-readiness of website. OPTCL is calculating and uploading in website.

TCC felt that grid operator should have the information on how much power they can export and import and they should restrict to that figures in order to avoid major grid disturbances.

Accordingly, TCC advised all the constituents to place the details in monthly OCC meetings till they upload the information in their respective websites.

TCC advised JUSNL to send their representatives to ERLDC so that they could get acquainted with the ATC/TTC calculation procedure. Representative from JUSNL informed that they are ready to send three officers to ERLDC, the names of officers would be shared in tomorrow's ERPC meeting.

ITEM NO. B15:	**Update status on SCADA telemetry**

CERC order (7/SM/2014) dated 29.01.2016 regarding the telemetry CERC at sl. no. 18 of their order have mentioned that

"*NLDC and respective RLDC are directed to up-date the status of telemetry every month at their web-site and persistent non-availability of data from the generating stations/sub-stations be taken up in RPC meetings for appropriate direction and action*".

Accordingly, ERLDC is preparing the monthly telemetry status in the prescribed CERC format every month and it is being uploaded it in ERLDC website;http://erldc.org/telemetry.aspx

In 121st OCC, ERLDC presented the updated telemetry status and informed that every month they were posting the updated status at ERLDC website.

The updated status is enclosed at **Annexure-B15.**

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

TCC may advice.

Deliberation in the TCC meeting

ERLDC informed that data from Vedanta was not available since last 4-5 months and only recently they have restored the data.

TCC advised all the constituents to go through the ERLDC website on regular basis and take appropriate action to make the data available to ERLDC.

ITEM NO. B16:	**Issues related to post implementation of New SCADA/ULDC scheme**

In 7th PRM meeting, WBSETCL informed that in new SCADA system, problem reporting mechanism and time-limit for resolving the issue is not available. They are not able to report any problem properly as format is not available. WBSETCL requested POWERGRID to provide the same. WBSETCL also informed that Chemtrols has not deployed the quality man power at their control centre. WBSETCL also requested POWERGRID to look into the appropriate man power deployment issue on priority basis so that any eventuality could be addressed in minimum possible time.

DVC also informed that Chemtrols has not deployed the quality man power at their control centres also.

ERLDC informed that ERLDC is also facing same problem and explained that under old SCADA system, deployed engineer were having good knowledge of SCADA, EMS, Networking as well as hardware but in new SCADA system, not a single engineer is having good working knowledge of SCADA, EMS and Networking also. ERLDC further informed that as per the LOA, Chemtrols has to deploy the expert of software and hardware who are having experience of at least 5 years in the same system.

Chemtrols informed that they are having problem in deploying proper man power at various control centres.

Director (Projects), BSPTCL mentioned that BSPTCL is not feeling the same comfort level in new SCADA system as compared to old SCADA system and requested POWERGRID to look into the matter seriously. He further requested MS, ERPC to call a separate high level meeting to resolve the issue of proper man power deployment at various control centres. He also mentioned that participation from LD & C department of POWERGRID should be must in SCADA PRM meeting being called by ERPC.
MS, ERPC agreed to call a separate high level meeting so that proper man power deputation issue could be addressed.

In special PRM meeting held on 07.06.2016, Constituents emphasised the need for a proper reporting and tracking procedure till the fault is addressed. Members felt that a central fault reporting mechanism with escalation to various levels for appropriate addressing and resolution of the problem with proper timely feedback to the registered problems need to be devised on line wherein one can log a problem and view the status of resolution of the same.

On query, M/s Chemtrols explained the proposed procedure for reporting and rectification of the problems during maintenance phase of the system.

The gist of the “On-Site Support Plan” proposal was as following:

1. The constituent to report the fault/problem in the system as per **Support Ticket Form** (Format attached)
2. Chemtrols to translate it in an Excel format called **Site Issue Tracker** and issue a ticket for each fault/problem reported and
3. Chemtrols site coordinator to immediately to take action to address the problem as per severity level time frame [Level-1]
4. In case the site coordinator is not able to address the problem, he would escalate to Chemtrols expert level support based in Mumbai [Level-2]
5. If Chemtrols Experts at Mumbai are unable to fully address the problem, they will escalate it to OSI [Level-3]
6. The solution provided by OSI will be route to site coordinator(s)

M/s Chemtrols submitted the names of their resources at Level-1 & Level-2.

Members stressed that the reporting and resolution procedure has to be ON-Line and accessible from anywhere to the authorised / bonafide engineer of the constituent to report the problem and monitor the status of resolution till the event is closed. M/s Chemtrols stated that they would develop an appropriate on-line fault reporting and rectification procedure within one month’s time.

After detailed discussion, it was decided to follow the present procedure as explained by Chemtrols and Chemtrols was advised to implement the on-line reporting procedure by 7th of July 2016. M/s Chemtrols agreed for the same. However this was agreed that this shall be a part of AMC contract.

TCC may advice.

Deliberation in the TCC meeting

TCC felt that Chemtrol is not extending full cooperation with the constituents and advised PGCIL to look into.

PGCIL informed that Chemtrol is recruiting relevant Engineers and the new single window on-line reporting system will be available by 7th July 2016.

TCC advised PGCIL to arrange demo of the new reporting procedure at ERPC Secretariat before 7th July 2016. To assess the post implementation performance of the project, TCC further advised Secretariat to continue convening quarterly PRM meetings for some more time as is done presently.

ERPC Secretariat informed that JUSNL representative was never attending PRM meetings.

TCC took serious note and advised JUSNL to send their representative in PRM meetings.

PGCIL informed that they have deputed only four engineers for new SCADA system in SLDC, and advised to depute three engineers per shift.

ERPC may guide.

ITEM NO. B17:	**Maintenance of RTU supplied under ULDC project at ISGS station**

It may be mention that POWERGRID has supplied RTU under ULDC project at NHPC: Teesta, Rangit and NTPC Kahalgaon, Talcher Super Thermal, Farakka and NTPC Lamatia stations.

During meeting with POWERGRID on 09th May 2016 they have informed that they are not going to do maintenance of RTU supplied at above mention station and LD & C , Gurgaon POWERGRID has already intimated NTPC /NHPC ,Now concerned stations has to take care of any maintenance / procurement of new RTU etc .

In special PRM meeting held on 07.06.2016, it was felt that the issue needs to be addressed by NTPC/NHPC and same was referred to TCC

NTPC/NHPC may update the status.

Deliberation in the TCC meeting

NTPC and NHPC informed that PGCIL is owner of the RTUs so they have to maintain the RTUs.

PGCIL informed that AMC will expire by July 2016 as the RTUs were supplied under old ULDC scheme and PGCIL could extend the AMC for further one year.

After detailed discussion, TCC advised PGCIL, NHPC and NTPC to resolve the issue bilaterally at their highest authorities.

ERPC may note.

ITEM NO. B18:	Connectivity of Unit Control Room with Orange Exchange at ERLDC

It may be mention that POWERGRID has supplied Orange phones under hot line communication system: one two wire analog and one VOIP (Voice Over Internet Protocol) phones are already supplied at NTPC Kahalgaon , Talcher Super Thermal , Farakka and Barh and MPL.

Switchyard of above stations are already connected with ERLDC Orange exchange via VOIP phone. Unit control room connectivity has to be done by Plant themselves. Plant have to laid cable between Unit and Switch yard control room for analog phones already provided at Switch yard control room (Communication channel is already ready for station to ERLDC).

GMR, JITPL, Indbharat, SEL has to make arrangement for connection with Orange Exchange at ERLDC (As per connection Agreement responsibilities lies with user).

In special PRM meeting held on 07.06.2016, it was felt that the issue needs to be addressed by NTPC/NHPC/IPPs and same was referred to TCC

NTPC/NHPC/IPPs may update the status.

Deliberation in the TCC meeting

NTPC informed that they are ready by 15th July 2016.

After detailed discussion, TCC advised PGCIL, NHPC and NTPC to resolve the issue bilaterally.

ITEM NO. B19:	Farakka Water Shortage : Certification of Availability for Force Majeure event

As per India-Bangladesh water treaty, 1996, water of the Ganga River flowing from India to Bangladesh is to be shared between the two countries. Due to sharing of water with Bangladesh, it was being observed that during certain periods in summer season, the water level in the feeder canal feeding water to Farakka Super Thermal Station of NTPC, is going down to very low level. This was creating shortages of cooling water at Farakka STPS. Taking note of receding water level in the Farakka feeder canal, NTPC envisaged installing lift pumps in Farakka Feeder Canal for pumping water to Farakka during low water level. However, subsequently, the lift pump could not be installed due to technical limitations.

During Feb- March 2016, the water level in Farakka has gone to such a low level that there was no water available for meeting the cooling water requirement. Farakka-1&2 (1600MW) have been designed with open cycle cooling water and no cooling tower is available. Farakka-3 (500MW) has been designed with cooling tower. During the period of Feb-March 2016, even the makeup

cooling water was not available leading to shut down of complete Farakka STPS (2100MW) as per details below.

Unit. No.	Date(s) & Time of Shut Down	Date & Time of Revival	Duration of Shut Down (hrs)	Remarks
1.	22-Feb-16 02:06	24-Feb-16 17:33	63.450	Taken out due to poor CW level
1.	26.02.2016, 16.36	22-Mar-16, 04:45	588.150	Taken out due to poor CW level
2.	11.03.2016, 17:17	22-Mar-16 16:24	263.117	Taken out due to poor CW level
3.	11.03.2016, 18:49	22-Mar-16 05:00	250.183	Taken out due to poor CW level
4.	11.03.2016, 23:26	23-Mar-16 05:33	270.117	Tripped due poor CW level
5.	11.03.2016, 19:14	22-Mar-16 18:10	262.933	Tripped due poor CW level
6.	12.03.2016, 12:00	22-Mar-16 02:08	230.133	Taken out due to non availability of CW makeup

Further, the power purchase agreements signed with various beneficiaries provides for Force Majeure event. The stoppage of the units and generation at the Farakka Station is on account of reasons beyond the reasonable control of NTPC and is in the nature of Force Majeure. This has been communicated to all the beneficiaries vide letter dated 18.03.2016.

In view of this, it is proposed that while calculating the availability of Farakka station, Force Majeure period as indicated in the table above may be excluded and the Farakka Availability may be revised as under.

S.N.	Station	Availability now (2015-16)	Revised Availability after excluding the period of Force Majeure event
1	Farakka-1&2	81.29%	84.31%
2	Farakka-3	81.64%	83.84%

In the Commercial Committee meeting (CCM), NTPC explained in details the problem of low flow in the river Ganges and the Ganges water sharing treaty. They also informed that anticipating the problem they had already filed a petition before CERC in 2006 for installation of lift pumps. However, due to erosion of banks the barrage authority had stalled the installation of lift pumps. NTPC requested constituents to consider the issue as a force majeure as it was beyond the control of the generator and accept average availability for the period of outage as circulated with the agenda.

GRIDCO, WBSEDCL and DVC expressed their reservation for considering the outage of FSTPS under force majeure. They expressed concern that this same issue may occur in future frequently and consideration of force majeure and accepting a deemed available status for such period will result in their payment of capacity charges for the period when there was no generation.

Member secretary requested the constituents that the events being in the nature of act of god may be considered as force majeure. He clarified that the issue of Farakka unit shut down due to water shortages in river Ganges may attact clause of force majeure in PPA/tariff regulations which

constituents had already accepted. Therefore beneficiaries were requested to agree in principle on deemed availability with separate deliberation/s on computation of deemed availability.

NTPC was requested to place all the latest documents on its petition before CERC in 2006 and subsequent developments.

The issue was referred to TCC by CCM

TCC may decide.

Deliberation in the TCC meeting

NTPC informed that this year in Feb-March the flow in the river Ganga had dipped very much. This, combined with the Indo-Bangladesh water sharing treaty resulted in very low flow of water in the Farakka feeder canal. NTPC further informed that they had taken up the issue in appropriate levels of government and Secretary, Power, Govt. of India had also written to Secretary, Water Resources, Govt. of India in this regard. NTPC further informed that they have made a lot of modifications, including syphoning to limit the impact of low water availability in the feeder canal. The idea of installation of lift pumps was also explored and CERC, in 2006, had approved the scheme. However, the installation of lift pumps was stalled by the barrage authorities due to chances of bank erosion. NTPC is further trying to install submersible pumps for increasing water availability in lean season. NTPC have also taken into confidence the power secretary, Govt of West Bengal, CMD of WBSEDCL and apprised them of the situation.

GRIDCO did not agree to accept the non-availability of water in feeder canal as force majeure and was of the opinion that NTPC, anticipating the problem, should have taken appropriate measures for solution to the water crisis much earlier. Jharkhand, WBSEDCL agreed with the observations of GRIDCO. WBSEDCL further submitted that the distribution companies are not financially indemnified if the generating station fails to supply power under force majeure conditions. While agreeing with GRIDCO and WBSEDCL, BSPHCL pointed out that the discoms are the most affected as they have to pay for force majeure conditions and requested CEA to take up the issue of compensation of discoms in case of force majeure conditions at appropriate forum. DVC advised NTPC to approach the central Commission for an order on this matter

MS informed that indemnification of discoms are beyond the scope of PPA. He informed that although the Indo-Bangladesh treaty was signed in 1996 and water shortage issues were there but even then NTPC never requested for force majeure treatment in the last 20 years. ERPC Secretariat was of the view that this year, the situation may have become so abnormal that NTPC was compelled to apply for force majeure clause of the PPA for the first time. The instance case, in view of the Secretariat, was definitely beyond the control of the generator and will be prudent to be treated as such. Extent of certification of availability may be decided subsequently. However, NTPC should take necessary steps to find a technical solution to the problem so that this force majeure claim does not become a regular feature.
Chief Engineer(PSP), CEA inquired whether closed cycle cooling could be established for Farakka Stage-I and Stage-II units. NTPC informed that the same may not be technically and financially viable as Farakka was a first generation thermal station.

It was decided that the views of the constituents and the view of the Secretariat may be placed before the ERPC for guidance and advice as to the further course of action.

ITEM NO. B20:	Erroneous recording of data by Interface Meters

i. Patratu(DVC)

SEM data received from Patratu(DVC) of 132 KV Patratu(DVC) – Patratu (JUVNL) line showing erroneous(around 50% recording Less as compared to JUVNL end) since charging of the line on 16.05.16. Accounting of DVC is being done by Standby meter at JUVNL end.

In the last Commercial sub committee meeting held on 10.06.2016, PGCIL informed that the line was under shutdown since a long time. DVC assured to check the CT/PT and inform the same to PGCIL and ERLDC before the ensuing TCC meeting.

DVC may update the status.

Deliberation in the TCC meeting

DVC informed that they would coordinate with JUSNL and get the issue resolved.

ii. Joda (OPTCL)

SEM data received from Joda (OPTCL) end of 220 KV Joda (OPTCL) – Ramchandarpur (JUVNL) line is showing erroneous(15-20% Less recording as compared to Ramchandarpur end) since 14.01.16. Matter was intimated to official of Joda OPTCL. In 119th OCC, OPTCL informed that SEM at Joda end needs to be checked and corrected. OPTCL informed that there is no line CT, so 2 nos SEM for the bus-coupler at Joda end is required. In 121st OCC, ERLDC suggested to place one meter at B/C and to check healthiness of existing SEM at Joda end of Ramchandarpur Line. Till now meter has neither been placed on B/C nor got existing meter rectified.

In the last Commercial Sub Committee meeting, PGCIL informed that they are having shortage of SEMs at present. However, some SEMs have been arranged and the metering at B/C of Joda would be completed before the ensuing TCC meeting.

PGCIL may update the status.

Deliberation in the TCC meeting

PGCIL updated that the meter placement at bus coupler at Joda could not be completed due to non availability of s/d of 220 kV Joda-Jindal line. The available SEM at 220 kV Joda-Jindal line is to be used with B/C CT. OPTCL informed that before removal of SEM from220 kV Joda-Jindal line they need to install Secure make meters for their own accounting purposes.

It was agreed that at the earliest available opportunity, OPTCL will allow s/d of the line and then both OPTCL and PGCIL could replace the meters.

iii. Reverse polarity of SEM installed at Joda in OPTCL

SEM is installed at both end of 132 KV Joda-Kendiposi Line. It was observed that Joda end meter is showing reverse polarity. The matter was also reported to OPTCL official. However as per the SEM data received from Joda, the polarity of the Joda end meter is still reversed and the problem persists.

In the last Commercial Sub Committee meeting held on 10.06.2016, OPTCL informed that they have got the CT polarity checked and the same is found correct and there may be problem in SEM polarity.

PGCIL and ERLDC clarified that meter terminals do not have any specific polarity requirement and the issue may have arisen due to treatment of star point.

PGCIL was requested that during their visit to Joda S/s for replacement of meter, they should also check and give their inputs on the reverse polarity issue.

PGCIL may inform their observations.

Deliberation in the TCC meeting

It was informed in the meeting that the polarity issue has been resolved. ERLDC confirmed the same.

ITEM NO. B21:	**By passing of SEMs at Kendiposi at JUSNL**

SEM is installed at both end of 132 KV Kendiposi (JUSNL)-Joda (OPTCL) Line. As per the SEM data received from 132 KV Kendiposi (JUSNL), readings of meter (Serial No. NP-6117-A) installed at Kendiposi end of 132 KV Kendiposi-Joda Line is not recording any flow compared to Joda end since long. It was gathered from Kedniposi that line is feeding load to Naumundi (JUSNL) regularly through Transfer Bus of Kendiposi by passing the SEM at Kendiposi.

Further Power from Joda is occasionally received at Main Bus of Kendiposi. In that case Meter installed at Kendiposi end of Joda Line records the energy flow through the line. In absence of non-recording of data by SEM installed at Kendiposi end of the aforesaid Tie line, data validation and energy accounting is being affected. Presently energy accounting is being done considering Joda OPTCL end meter.

Bypassing of SEM installed at Tie line is violation of CEA metering regulation 2006 and the same is needed to be restored. JUSNL may also confirm CT availability on the transfer bus.

In the last Commercial Sub Committee meeting held on 10.06.2016, JUSNL representative was not present therefore no discussions could be held on the bypassing of SEM.

ERLDC informed that as gathered by them, CT is available on the transfer bus. PGCIL was requested to install meter on the transfer bus at Kendiposi. PGCIL agreed.

ERLDC may elaborate. Members may discuss.

Deliberation in the TCC meeting

JUSNL representative was not cognizant of the issue regarding bypassing of meter at Kendiposi. JUSNL was advised to get the information collected and place before the ERPC tomorrow.

TCC observed that by passing of meter being violation of CEA metering regulation should never be resorted to. In order to get proper metering, JUSNL will arrange for shutdown of the line and intimate the programme to PGCIL.

PGCIL thereafter would remove the meter from the bypassed CT and place it with the transfer bus CT. When the bypass would be removed, PGCIL will re shift the meter to original CT. JUSNL would provide a programme in 33rd ERPC meeting and PGCIL wlll do the needful shifting of meter.

JUSNL ,ERLDC, PGCIL agreed to the proposal.

ITEM NO. B22:	**Non Receipt of SEM data from Various Locations**

i. Forbisganj at BSPTCL

Kishanganj (BSPTCL) end meter of 132 KV Purnea (PG) Line is not recording any flow compared to Purnea PGCIL end since 14:00 hrs of 29th June 2015. It was gathered that line is feeding load to Farbisganj at BSPTCL regularly through Transfer Bus of Kishanganj bypassing the SEM at Kishanganj. It was decided to place 02 nos of SEM at Forbesganj. In 31st CCM, BSPHCL representative informed that meter has been placed at Farbesgunj on 03.02.2016. In 121st OCC PGCIL informed that DCD for downloading the data has been handed over to BSPHCL. However ERLDC has not received the SEM data till now.

In the last Commercial Sub Committee meeting, BSPTCL informed that the matter was due to upgradation of operating system and software compatibility issues. However, it was assured that the matter would be resolved at the earliest.

BSPTCL may update.

Deliberation in the TCC meeting

PGCIL informed that the DCD had become defective, so they have requested BSPTCL to provide a laptop in which they would install the software for meter data download. BSPTCL informed that they have provided PGCIL the laptop. PGCIL confirmed that after loading the software they will return the laptop on Monday, 27.06.16

i. Santaldih in WBSETCL

SEM from Santaldih for 220 KV Santaldih (WB)-Chandil (JUVNL) Line is not reporting either in DCU of AMR system or communicating through DCD since 28.01.16. In 121st OCC, Powergrid informed that the defective meter will be replaced at earliest. ERLDC has not received the replacement details of meter.
In the last Commercial Sub Committee meeting, PGCIL informed that they could not replace the meter due to shortage of meters with them. However, some meters are now available and the issue would be resolved before the ensuing TCC meetings.

PGCIL may update.

Deliberation in the TCC meeting

PGCIL informed that the meter has been replaced.

ITEM NO. B23:	Installation of SEM at Haldia

SEM is placed only at Subhashgram (PG) end of 400 KV Haldia (CESC)-Subhashgram (PG) D/C. No standby SEM has been placed at Haldia end till now. In absence of Subhashgram end data; there is no back up meter available for accounting of the power flow through that Tie line.

In 32nd TCC/ERPC, CESC informed that they have already processed and requisite SEM meter will be positively installed by May'2016. Unfortunately, till now issue is not resolved and ERLDC has neither received the details of SEM nor received weekly SEM data.

In the last Commercial Sub Committee meetings, members expressed concern over non resolution of the issue by CESC even after decision in the highest forums. It was decided to again refer the issue to TCC for update.

CESC may update.

Deliberation in the TCC meeting

CESC informed that they have already changed the meters recently. ERLC confirmed.

ITEM NO. B24:	Non-submission of weekly SEM readings by Tuesday noon from non-AMR locations/faulty AMR locations

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

By Wednesday or later: APNRL, Gaya, Kishanganj, Rangpo, Kahalgaon NTPC,

APNRL, PGCIL & Kahalgaon NTPC are once again requested to please adhere to the schedule.
In the last Commercial Committee meeting, ERLDC informed that nearly 90% of data were received for AMR implemented meters.

For Gaya, PGCIL informed that there were some AMR related issues which would be settled by next week. Kishangunj and Rangpo were yet to be incorporated in AMR scheme. Data for APNRL is coming in time.

In Kahalgaon NTPC there is problem in AMR data from two meters and therefore, manual data for the station is being collected. PGCIL requested ERLDC to share the serial no of the meters for further action tat their end.

APNRL, PGCIL & Kahalgaon NTPC may update.

Deliberation in the TCC meeting

ERLDC informed that problem at Gaya has been rectified and data from APNRL, PGCIL & Kahalgaon are now coming through the AMR system.

ITEM NO. B25:	Future requirements of SEMs and DCD/Laptops

In 30th ERPC meeting procurement of 965 no of SEM's and 110 nos of Laptop/DCD (in 111th OCC meeting) was approved. Further 31st TCC/ERPC approved the cost sharing mechanism of expenditure on SEM's and DCD/Laptops along with POWERGRID overhead charges @ 15% to be shared by the beneficiaries constituents of Eastern Region in proportional to the share allocation for the month in which the proposal was approved in the ERPC meeting. In 32nd TCC/ERPC, Powergrid intimated that order had been placed on 15.03.2016.

In the Commercial Committee meeting held on 10.06.2016, PGCIL informed the meters are expected to be delivered @ 25% every 4 month period. It was also informed that the award had been given to M/s Janus Power. PGCIL clarified that these meters have bulk time correction facility.

Powergrid may update.

Deliberation in the TCC meeting

PGCIL informed that order has been placed with M/s Janus Power and delivery is expected in six phases starting August'16.

ITEM NO. B26:	Opening of LC by ER constituents for Deviation Charges Payments

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

Quote

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

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

Unquote

The details of LC amount required to be opened in 2016-17 by ER constituents is given in **Annexure – B26.** Letters to this effect has already been issued by ERLDC to the defaulting entities viz, JUVNL, GATI , Vedanta Ltd and Ind Barath. Rest of the constituents which were required to open/recoup the LC, they have opened/recoup the LC.

JUVNL, GATI, Vedanta and Ind Barath may update.

Deliberation in the TCC meeting

JUSNL representative informed that opening of LC is not their responsibility and either the JUVNL or the JBVNL may be approached. TCC referred the issue for decision to ERPC.

ERLDC informed that GMR is also to renew their LC. Vedanta had opened requisite LC. Ind Barath and Gati representatives were not present.

ITEM NO. B27:	**Reactive Energy Charges – present status**

The updated position of Receipt/Payment of Reactive Energy Charges in the pool as on 31.05.2016 (considering bill up to 08.05.2016) is indicated in **Annexure-B27**. The total outstanding receivable on account of Reactive charges from WBSETCL/WBSEDCL is ` 8.84 Cr. Due to non-payment by WBSETCL/WBSEDCL, ERLDC have started getting reminders from other recipient constituents regarding liquidation of outstanding from ER Reactive pool.

WBSETCL/WBSEDCL may confirm the program for payment of outstanding dues

Deliberation in the TCC meeting

ERLDC informed that the reactive charges outstanding against West Bengal were Rs. 10.79 Cr. WBSETCL informed that they have already taken up with their SLDC for finding out a sharing mechanism for the Reactive charges payable by West Bengal by its utilities and the issue would get sorted shortly.

ITEM NO. B28:	**Writ Petition on 220 kV Farakka-Lalmatia Transmission System [W.P.No. 17044 (W) of 2015 before Hon'ble High Court at Calcutta]**

Both ERPC and ERPC Secretariat were the party/respondent in the **Writ Petition on 220 kV Farakka-Lalmatia Transmission System [W.P.No. 17044 (W) of 2015 before Hon'ble High Court at Calcutta]**. The matter was discussed in the 32nd TCC & ERPC Meeting. In TCC meeting it was decided that ERPC Secretariat would have to engage the services of a legal expert, as ERPC Secretariat does not have a legal cell, for representing before the Hon'ble High Court of Calcutta. 32nd ERPC also endorsed the decision of TCC and authorized MS, ERPC for engaging the services of a legal expert.

Accordingly, ERPC Secretariat engaged a legal firm namely M/s Custos Legis, 2A Ganesh Chandra Avenue, 3A Second Floor, Commerce House, Kolkata-13 for the purpose. Counter affidavit was filed. Necessary conference was made with the senior counsel. The case was heard in Hon'ble High Court of Calcutta on 11.04.2016, 02.05.2016 and 06.05.2016. Again it was also scheduled to be hard on 13.05.2016 but could not be hard on that date. Next date of hearing is yet to be communicated by the counsel.

During deliberation in the 32nd TCC & ERPC meeting the constituents were agreed to share the legal expenses on equal basis. Till date total expenditure on the said legal matter was Rs. 4,09,000/- (rupees four lakh nine thousand only). The amount has been paid to the legal firm from the existing "ERPC Establishment Fund".

Post facto approval may please be accorded for the said expenditure.

Deliberation in the TCC meeting

TCC approved incurrence of the legal expenses from ERPC establishment fund & approved the amount. TCC referred to ERPC for further concurrence.

ITEM NO. B29:	Outstanding issues with JUSNL/JUVNL.

1. Non participation in Commercial Sub Committee meetings

JUSNL representatives are not participating in the Commercial Sub Committee meetings of ERPC since 29th Commercial Sub Committee meetings held on 20.05.2015.

JUSNL may opine.

Deliberation in the TCC meeting

TCC advised JUSNL and all other members to send representatives in all ERPC Sub-Committee levels

2. Outstanding Payment of Deviation Charges

In the last Commercial Sub Committee meeting, it was informed by ERLDC that Deviation Charge payment outstanding of JUSNL/JUVNL as on 31.05.2016 is **Rs. 60.91 Cr** considering bill up to 15.05.2016. Moreover, an interest amount of **Rs. 166.28861 Lac** (as on 31.05.2016) is also payable by JUVNL due to delay payment of DSM charges. JUVNL has not paid the Deviation charges since 18.06.2015.

Even after several request and reminders from ERLDC, JUVNL /JUSNL has not paid the outstanding dues.

ERLDC has also given letter to JUVNL requesting to liquidate the entire Deviation charges along with delayed payment interest and open the LC for required amount failing which *Regulation 25A of the Open Access Regulations will be invoked and STOA will be denied.*

Quote:

25A. When so directed by the Commission, the National Load Despatch Centre or the Regional Load Despatch Centre, as the case may be, shall not grant short-term open access to the entities and associates of such entities, who consistently and willfully default in payment of Unscheduled Interchange charges, transmission charges, reactive energy charges, congestion charges and fee and charges for National Load Despatch Centre or Regional Load Despatch Centre including the charges for the Unified Load Despatch and Communication Scheme .

Unquote

25th ERPC/TCC had already directed ERLDC not to entertain any STOA transaction if any of the provisions of the CERC (Short Term Open Access and related matters) Regulations, 2008 is violated.

So in view of ERPC direction ERLDC may file pettion before CERC for invoking section 25A.

ELDC may update.

Deliberation in the TCC meeting

ERLDC informed that the principal outstanding against Jharkhand had grown to around Rs.65.93 Cr. JUSNL representative could not update or provide any road map for liquidation of dues.

In absence of any commitment from JUSNL, TCC advised ERLDC to implement the provisions of clause 25 A of Open Access Regulations on JUSNL with effect from 01.07.2016 in line with decision of 25th ERPC.

It was decided to place the agenda in ERPC tomorrow for further concurrence.

3. Non-release of payment towards service charges for maintenance of EMS/SCADA system

LTSA (Long term Service Agreement) contract for EMS/SCADA system installed at all control center has been awarded to M/s Alstom T&D Ltd. on 15th January 2010. Outstanding against EMS SCADA AMC as on 31.05.2016 is Rs. 14,59,432 for which due date was 03.02.2016.

In the last Commercial Sub Committee Meeting, JUSNL representative was not present. Therefore, it was decided to bring this to the notice of TCC member from Jharkhand.

JUSNL may place the roadmap.

Deliberation in the TCC meeting

JUSNL representative was not aware. Therefore it was decided to place the agenda in ERPC tomorrow.

4. Outstanding payment towards construction of bay at Biharsharif (PG) sub-station for 400kV Biharsharif-Tenughat line

Powergrid vide letter dated 12.10.2016 informed that in 30th TCC advised to take up the issue for earliest liquidation of payables by JUSNL for outstanding payment towards construction of bay at POWERGRID Biharsharif sub-station for up-gradation of 220kV Biharsharif-Tenughat line to 400 KV level.

JUSNL was requested to take up the matter on priority and release the outstanding payment for early completion of balance work at POWERGRID Biharsharif sub-station.

In 121st OCC, Powergrid informed that JUSNL not yet released the payment.

JUSNL may update.

Deliberation in the TCC meeting

JUSNL representative was not updated. Therefore it was decided to place the agenda in ERPC tomorrow

Additional Agenda Items*:*

1. **Post facto approval of expenditure incurred for 5 day Protection training programme at ERPC, Kolkata**

   MS informed that a total expenditure of Rs. 4, 05,154/- had been incurred from ERPC Fund for 5 day Protection training programme at ERPC, Kolkata and the same may be approved post facto by TCC and forwarded to ERPC for concurrence/approval. On ERPC approval, the money would be reimbursed to ERPC Fund from Reactive Pool Account.

Deliberation in the TCC meeting

TCC approved and recommended to ERPC for approval.

2. **Eastern Region Fibre Optic Expansion Project (Additional Requirement)**

   Implementation of OPGW based communication on following lines/locations was approved on tariff route basis in various ERPC meetings as described below:

Sl	Location	Lines	Length (km)	Remarks
1	Pandiabill	400 KV Baripada-Duburi-Pandiabil	290	Redundant link for Pandiabill S/s approved in 27th ERPC meeting
2	Chuzachen	132 KV Rangpo-Chuzachen	22	Main link for Chuzachen approved in 27th ERPC meeting.
3	Teesta III	400 KV Teesta III - Kishangunj	212	Main link for Teesta III approved in 27th ERPC meeting.
4	TLDP	220 KV TLDP - NJP	81	Main link for TLDP approved in 27th ERPC meeting
5	Motihari	400 KV Barh-Gorakhpur	354	Main and standby link for Motihari through LILO of Barh-Gorakhpur at Motihari. Approved in 31st ERPC.
6	Dhanbad	400 KV Ranchi-Maithon RB	188	Main and standby link for Dhanbad through LILO of Ranchi-Maithon RB at Dhanbad. Approved in 32nd ERPC.

OPGW based communication system on above-mentioned lines (1147 km) as approved by ERPC, is being implemented as "***Eastern Region Fibre Optic Expansion Project (Additional Requirement)***". The investment made by POWERGRID on this project shall be recovered through tariff to be determined by CERC.

Deliberation in the TCC meeting

MS, ERPC appraised that OPGW for above lines was already approved in various ERPC meetings.
TCC approved the proposal of PGCIL to include the above OPGW as Eastern Region Fibre Optic Expansion Project (Additional Requirement)

3. **Standardization of OPGW in lieu of One Earth Wire in all Transmission lines**

i) The Power System requirement for Communication is increasing multifold due to
   a. special protection scheme
   b. Ever increasing data reporting to Load Dispatch Centre.
   c. Phasor measurements based data collection and reporting.
   d. Remote monitoring/operation of sub-station/elements.
   e. Differential protection on Lines

   The practice of putting fiber in selected lines lead to situation where station connectivity is held up due to either identified line delay or LILO of under construction line etc.

ii) OPGW installation on existing lines is delayed due to shut down, ROW issues.

iii) It is proposed to include one 24 Fiber (OPGW) in all transmission lines which will ensure availability of wideband Communication from all substations to cater bandwidth for various power system application for which communication equipment (SDH– STM-16) shall be provided at all upcoming substations.

iv) Further in the Meeting Chaired by secretary (Power), Govt of India on "Reliable communication System upto 132kV Substations level" , it was decided that considering importance of reliable communication in various applications and difficulties in installation of OPGW under O&M stage, the provision of OPGW in place of one of the earthwire should be kept in all the upcoming lines so that OPGW is installed during construction of line. (Copy of the Minutes of meeting enclosed at Annexure-I). It will also ensure availability of wideband Communication from all substations to cater bandwidth for various power system applications for which communication equipment (SDH– STM-16) shall be provided at all upcoming substations.

Deliberation in the TCC meeting

MS, ERPC appraised that the constituents agreed to the proposal in 18th SCM.

4. **OPGW installation work of DSTPS – RTPS link of DVC**

In order to obtain fibre connectivity at DSTPS (GS) and RTPS (GS), OPGW installation work has been taken up by POWERGRID for this link. Out of 70km, 55km installation work has been completed and 16 km work has been held up in three sections of the line since last two years due to non-payment of compensation during construction of the line. Several meetings have been conducted with DVC authority for clearing the ROW after making unpaid compensation payment to the affected landowners. Issue has not yet been resolved. POWERGRID executing agency has made multiple mobilisation to execute the work but failed due to resistance from the effected landowners.

DVC may comment.

Deliberation in the TCC meeting

PGCIL informed that they have mobilised the gang 6 to 7 times but the work could not be taken due to unresolved ROW issues.

PGCIL expressed that if clearance is not arranged by DVC within a month PGCIL could hand over all the materials to DVC and demobilise the gangs.

DVC opined this bilateral issues will be resolved with PGCIL mutually.

5. **Installation of 2nd 220/132 kV 100 MVA ICT at Muzaffarpur – Interim Arrangement for India – Nepal Interconnection through Muzaffarpur (India) – Dhalkebar (Nepal) 400 kV D/c line**

Muzaffarpur (POWERGRID) - Dhalkebar (NEA) 400 kV D/c line (to be operated at 220kV) has been implemented for interconnection of India and Nepal grids. In view of delay of 220 kV sub-station at Dhalkebar, one circuit of Muzaffarpur – Dhalkebar 400 kV D/c line is presently under operation at 132 kV as an interim arrangement by installation of 220/132 kV 1x100 MVA ICT from regional pool of spare ICTs at Muzaffarpur and about 80 MW power is being transferred through this link from India to Nepal.

Subsequently, Nepal has requested for additional power transfer through this link. Accordingly, it is proposed to install 2nd 220/132 kV, 100 MVA ICT from regional pool of spare ICTs, at Muzaffarpur (POWERGRID) substation in parallel to existing 220/132 kV, 100 MVA ICT, as a goodwill gesture. This interim arrangement shall be removed when 220 kV Dhalkebar substation gets commissioned and Muzaffarpur – Dhalkebar 400 kV D/c line is operated at 220 kV. The proposal has been agreed in the 18th Standing Committee Meeting on Power System Planning in Eastern Region held at Kolkata on 13-June-2016.

Members may approve.

Deliberation in the TCC meeting

MS, ERPC appraised that the constituents agreed to the proposal in 18th SCM.

6. Mismatch of network at the time of DOCO

CERC vide some of its recent orders has strongly commented against assets mismatch noticed at the time of declaration of DOCO & has advised the following:

"In case of cost plus, the mismatch between Generation / Downstream network / Upstream network, Transmission licensee will not burden the consumers and the charges would be compensated through the IA between the parties".

CERC vide its orders has not included such assets in PoC and in cases of declaration of DOCO, it has been directed to recover transmission charges from concerned Generator / STU / Discoms. Further, following has been mentioned in the CERC (IEGC) (Fourth Amendment) Regulations, 2016, dated 6/4/16 under 5.4. Proviso (iii):

"Where the transmission system executed by a transmission licensee is required to be connected to the transmission system executed by any other transmission licensee and both transmission systems are executed in a manner other than through tariff based competitive bidding, the transmission licensee shall endeavor to match the commissioning of its transmission system with the transmission system of the other licensee as far as

practicable and shall ensure the same through an appropriate Implementation Agreement."

Keeping above in view, STUs are requested to ensure utilization of the 220kV line bays and also sign the implementation agreement for same.

Members may note.

Deliberation in the TCC meeting

TCC noted.

7. **Connectivity issues of MPL**

Maithon Power limited has tied up its entire capacity with the following beneficiaries under long term PPA.

Beneficiary	MW
TPDDL	300
DVC	300
WBSEDCL	300
KESB	150

Recently DVC has surrendered some portion of their capacity which has tied up with Kerala State Electricity Board Limited. However all the beneficiaries of MPL has obtained their long term open access after considering 6.5% auxiliary consumption which is as per CERC regulation 2009-14. Under the current CERC Tariff regulation 2014-19 the auxiliary consumption is 5.75%. MPL seeks TCC, ERPC's intervention in directing its beneficiaries for obtaining long term open access as per the 2014-19 regulations.

Deliberation in the TCC meeting

MS, ERPC opined it is a connectivity related issue and advised MPL to have interaction with CTU.

PART C: ITEMS FOR INFORMATION

TCC members may note the following items with assurance to ensure needful for compliance, if any, pending

ITEM NO. C1:	Construction of 132 kV D/C Deoghar – Banka line for reliable power supply to Railway TSS from 132 kV Deogarh (JSEB) S/S

The issue was discussed in the 16th Standing Committee meeting of ER held on 2nd May, 2014 and the 132 kV D/C Deoghar – Banka line was agreed as an interstate line.

The 27th TCC & ERPC concurred the decision of standing committee.

Considering importance of Railway supply Powergrid was entrusted to construct the line.

However in 32nd TCC, JUSNL informed that there is a space constraint at Deoghar S/s for constructing bays for this line and proposed to shift this line to their new substation Jasidih in Deoghar area which is 5 km away from Deoghar S/s.

TCC felt that 132 kV Banka- Deoghar D/C line was placed before 16th Standing Committee and Powergrid was entrusted to construct the line after detailed deliberation. TCC expressed, at this juncture it would not be prudent to scrap this proposal.

JUSNL informed that Jasidih S/s is also located in Deoghar area and terminating Banka to Jasidih will not affect the reliability of power supply to the railway.

CTU informed that JUSNL proposal may be discussed at CEA and the best solution may be put forward.

In 4th SSCM, BSPTCL informed that from 400/132 kV Banka (PG) S/s Bihar is already drawing power through six 132 kV feeders and if Deoghar is also connected then for fulfilling the (n-1) criterion there would be requirement of ICT augmentation. Now, 220 kV Dumka S/s has also been commissioned in Jharkhand so the possibility of 132 kV feeder from Dumka may be envisaged for reliable power to Railways.

Members also raised their concern about how the reliable power can be assured by terminating the line at Jasidih GSS which is still under proposal/construction stage. Also, whether JUSNL will be able to operate the Deoghar S/s with their bus-coupler in on condition.

JUSNL however assured that on commissioning of 220/132/33 kV Jasidih and 132 kV D/C Jasidih-Deoghar the Railways will get the reliable power. But no immediate solution to Railway supply from Deoghar was envisaged as both the S/S at Joshidih and D/C line from Joshidih are getting delayed.

After detailed deliberation, it was decided that the above proposal will be reviewed and alternative proposals could be placed in the SCM.

In 18th SCM the following new proposals were placed:

The line was basically intended to supply reliable power to Railways and its construction has

already been delayed by two years. Therefore considering the urgency of improving power supply reliability of Railways the following options may be explored, instead of depending on construction Jasidih S/Stn of JUSNL:

(a) SinceJasidih 220/132kV S/Stn and 132kV Jasidih-Deoghar D/C line is yet to be constructed, JUSNL may provide only the two 132kV bays at Deoghar for termination of the D/C 132kV line from Banka(PG) and subsequently explore construction of two more 132kV bays at Deoghar for the line to Jasidih. Further, instead of Banka, a 132kV D/C line from Dumka 220/132kV S/Stn of PGCIL can also be thought of.

(b) In case it is not at all possible to accommodate two more 132kV bays at Deoghar and yet it is required to be connected to Jasidih S/Stn, each of the circuits of the proposed Banka-Deoghar D/C line may be LILOed at Jasidih in phased manner, after their 132kV bays at Jasidih become ready.

(c) At present Shankarpur TSS is supplied through a S/C 132kV line from Deoghar, due to which there is no network redundancy between Deoghar GSS and Shankarpur TSS. Railways may therefore examine the feasibility of terminating a132kV D/C line either from Banka or from Dumka (PG) directly at their Shankarpur TSS, in their own interest of availing reliable power supply.

(d) If one new 132kV bay can be constructed at Shankarpur TSS, then feasibility of supplying power directly to Railways from Dumka 220/132kV S/Stn or Banka S/Stnof PGCIL through a 132kV D/C line may be explored. In that case, one of the 132kV circuits would be terminated at the new bay at Shankarpur while for termination of the other circuit, the existing bay will become free if 132kV Deoghar-Shankarpur S/C line is disconnected at Shankarpur end.

However, for supplying Railways from Dumka (PG), augmentation of 400/220kV ICT capacity at Maithon (PG) is a pre-requisite.

In 18th SCM the issue was deliberated threadbare and it was decided that a special meeting with all concerned parties including Railway will be convened by CEA shortly to review the situation for a final decision.

ITEM NO. C2:	**Implementation of Automatic Demand Management Scheme (ADMS)**

Regulation 5.4.2 (d) of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 (Grid Code) provides for implementation of demand management schemes by State Load Despatch Centre through their respective State Electricity Boards/Distribution Licensees. This is a basic measure towards ensuring grid security. Due to non-implementation of this scheme so far, CERC vide order dated 31-12-15 on **Petition No. 5/SM/2014** had directed all constituents as follows:

"However, considering the request of the respondents to grant time to implement ADMS, we grant time till **30.6.2016** to the respondents to implement ADMS, failing which they will be liable for action under Section 142 of the Act for noncompliance of the Regulation 5.4.2 (d) of the Grid Code and order of the Commission. RLDCs are directed to submit the report in this regard by 31.8.2016."

In 120th OCC meeting, *Powergrid informed that it is possible to implement in new SCADA system.*

After detailed deliberation, OCC referred the issue to 7th PRM meeting for further course ofaction.

Members may therefore kindly ensure compliance of CERC's order as stated above and furnish details of ADMS implementation in their respective states / control areas by 24-06-16.

In 7th PRM meeting, m*ember Secretary, ERPC briefed the members about the need for compliance of the CERC directive for implementing Automatic Demand Management scheme (ADMS) in their respective systems. He informed that on the request of the constituents, the issue was taken up with POWERGRID for inclusion of ADMS in the new SCADA system project under ULDC. He further informed that POWERGRID vide their letter dated 22.04.2016 have communicated that automatic load shedding and restoration feature named "Load Shed Support (LSS)" is already provisioned and tested in the new SCADA system for substations upto 132 kV.*

While discussing the issue in detail, it emerged that this feature can be implemented in ER constituent systems (WB, DVC, BSPTCL, JUSNL and Sikkim), upto 33 kV side as the telemetry of 33kV side has also been included in the SCADA project just implemented. M/s Chemtrols who are implementing the system, were asked to give their views on this.
M/s. Chemtrols informed the following:

a) *On all the new RTUs supplied by them, the 33 kV side telemetry is covered and they have provided the DO (digital output) cable up to CR panel. The DO cable has already been laid and terminated in C&R panel wherever constituent's testing team facilitated. In BSPTCL system, this DO wiring has been done for majority of RTUs commissioned, while in WB and DVC systems, the termination of DO wiring points was not facilitated at the time of commissioning. The same is now in progress in DVC system. DO wiring will be done simultaneously on the 12 Nos. of RTUs under commissioning in WB system. However, they requested constituents to ensure the availability of their Testing Teams to facilitate the same.*
b) *Chemtrols further informed that this DO control cannot be exercised for the existing RTUs in the constituent systems.*
c) *OPTCL system does not have the provision for LSS. (DO command and control).*

After detailed deliberation the following schedule was given to Chemtrols for wiring of DO in BSPTCL, DVC, WB and JUSNL systems till 30.06.2016.

BSPTCL: 50 stations
WB: 10 stations (where New RTUs are under commissioning)
DVC: 12 stations (where work is already in progress)
JUSNL: 2 stations

M/s Chemtrols stated that they will try their best to follow the above schedule. However, the deployment/availability of testing team shall have to be ensured by the constituents. Constituent agreed to deploy Testing team as per requirement on priority.

Regarding implementation of the ADMS in OPTCL, OPTCL informed that they will discuss the matter with appropriate management and will intimate the same at the earliest.

In special PRM held on 7th June, 2016, Chemtrols provided the following status of DO implementation:

Constituent	Target by June end	Actual
Bihar	50	67
DVC	12	17
WBSETCL	10	65**
Jharkhand	2	2

(**As per the WB instruction, In all RTUs of WB the DO cable has been terminated in the C&R Panel TBs. WBSETCL testing Team to further extend the connections to the trip relays)

ITEM NO. C3:	Connectivity of Bangladesh and Bhutan NLDC with Orange Exchange at ERLDC

POWERGRID has informed that under hotline communication project, for connectivity of India with Bhutan and Bangladesh there is need of Ethernet connection (2 MBPS) between NLDC Bangladesh –ERLDC Kolkata and NLDC Bhutan –ERLDC Kolkata.

Updates on the status of availability of Ethernet channel between respective two countries are required from POWERGRID India / NLDC Bhutan / NLDC Bangladesh so that VOIP phones may get connected with ERLDC Kolkata Exchange.

In special PRM meeting held on 07.06.2016, the issue has been deliberated and all agreed that being an international link at Bangladesh and Bhutan NLDC, existing voice facility with Bangladesh and Bhutan with ERLDC and NLDC will be continued to be maintained.

ITEM NO. C4:	Payment/Receipt Status from various pool accounts in ER

C4.1. Congestion Account - Present Status

The status of congestion charge payment after full settlement is enclosed at **Annexure – C4.1.**

C4.2. Status of PSDF

An amount of ` 2.50 Cr from Reactive account & ` 33.64 Cr from Deviation Pool account have been transferred to PSDF after 31st Commercial sub-committee meeting held on 05.02.16. With this the total amount of ` 883.39 Cr. has been transferred to PSDF so far. The break up details of fund transferred to PSDF (till 31.05.16) is enclosed in **Annexure – C4.2**.

C4.3. Disbursement of Interest due to delayed payment of deviation charges

ERLDC has recovered an amount **` 20.40062 Lacs** from M/s APNRL and **` 165.72820 Lac** from BSPHCL towards interest due to delayed payment of deviation charges in FY 2015-16. Above Interest amount is disbursed amongst recipient constituents as mentioned in **Annexure-C4.3** and the balance amount of **` 59.34044 Lac** is transferred to PSDF Account.

With this, interest amount receivable by constituents of ER for FY 2015-16 due to delayed payment of Deviation Charges is fully settled.

This is for information to the members.

C4.4. 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 31.05.2016 (considering bill up to 08.05.2016) is indicated in **Annexure – C4.4.**

In the last Commercial Committee meeting held on 10.06.2016, NTPC requested constituents to share their bank account details so that payment may be credited at the earliest. NTPC also informed that many of the constituents desired for adjustment from bills rather than receiving payment. Commercial Committee felt that in case some constituents were agreeable to adjustment against bills NTPC may adopt this procedure with mutual consent. NTPC informed that they have have already put across their concerns to NLDC.

C4.5. Reconciliation of Deviation Accounts

At the end of 4th quarter of 2015-16, the reconciliation statement (Period: 01.01.16 to 31.03.16) has been issued by ERLDC on 05.04.16 and statements had been sent to the respective constituents and also uploaded the same at ERLDC website (www.erldc.org) on 05.04.2016. The constituents were requested to verify /check the same & comments if any on the same were to be reported to ERLDC by 20.04.2016. The status of reconciliation is enclosed in **Annexure – C4.5**.

JUVNL, SIKKIM, & Ind Barath have not signed reconciliation statement for 4th Qtr of 2015-16. Further JUVNL, SIKKIM & Ind Barath have not signed reconciliation statement for more than last 4 quarters.

Above constituents are once again requested to submit the signed reconciliation statement at the earliest. If the confirmation is not received within 2 weeks from the date of issuance of the letters the statements issued by ERLDC have been deemed to be reconciled.

C4.6. Reactive Account

At the end of 4th quarter of 2015-16, the reconciliation statement (Period: 01.01.16 to 31.03.16) has also been issued by ERLDC on 05.04.16 and statements had been sent to the respective constituents. The constituents were requested to verify /check the same & comments if any on the same to be reported to ERLDC by 20.04.2016.

WBSETCL have not reconciled the Reactive account. If the confirmation is not received within 2 weeks from the date of issuance of the letters the statements issued by ERLDC have been deemed to be reconciled

ITEM NO. C5:	**Short Term Open Access payment/receipts reconciliation**

I. For STOA payments made to SLDC / STU :

The reconciliation statements of STOA payments for the period Apr'15 to Dec'15 have been send to the DVC, OPTCL and WBSETCL for checking at their end and confirmation.

OPTCL has confirmed for entire period except for the month of Dec'15. WBSETCL is yet to confirm for the period of Oct'15 to Dec'15. 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.

II. For payments received from STOA applicants:

The payment receipt statements of STOA for the period of Dec'12 to Mar'13, FY-2013-14 , FY-2014-15 and Apr'15-Dec'15 have been send to the BSEB, JSEB, JITPL, GRIDCO, WBSEDCL, SEL , TSL, GMRKEL for checking at their end and confirmation.

Signed reconciliation statements have been received from BSEB for the period of Dec'12 to Mar'13 only. JSEB has not confirmed for the entire period of FY-2014-15 and Jul-15 to Sep-15. JITPL has confirmed and signed reconciliation statements for the entire period except Jul-15 to Sep-15. GMRKEL is yet to confirm for the period of Apr-15 to Jun--15 only. GRIDCO has confirmed and signed reconciliation statements for the entire period except Sep-14. WBSEDCL has confirmed and signed reconciliation statements for Nov'13, Dec'13, Jan'14, May-14 and Oct-14 only. 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 is attached in the **Annexure-C5**.

ITEM NO. C6:	**Commercial issuesrelated to NHPC Stations**

1) Non-opening of LC of requisite value :-

(i) **NBPDCL** has to provide LC of **Rs. 6.65 Crs**. Similarly, **SBPDCL** has to provide Letter of Credit of **Rs. 8.44 Crs**. But NBPDCL has provided LC of **Rs.** 2.10 Crs and SBPDCL **Rs.** 2.90 Crs which are far short of requisite values.

In the last Commercial Committee meeting NHPC informed that they are receiving regular payments from SBPDCL/NBPDCL.

2) Payment of outstanding dues for more than 60 days.

i) <u>NBPDCL</u>

An amount of **Rs. 1.96 Crs** is outstanding for more than 60 days including surcharge of **Rs. 0.16 Crs**.
In the last Commercial Committee meeting Representative from SBPDCL/NBPDCL informed that they would liquidate the outstanding at the earliest.

ii) <u>SBPDCL</u>

An amount of **Rs. 12.23 Crs** is outstanding for more than 60 days including surcharge of **Rs. 0.23 Crs**
In the last Commercial Committee meeting Representative from SBPDCL/NBPDCL informed that they would liquidate the outstanding at the earliest.

3) Extension of BPSA in r/o Rangit & Teesta-V Power Stations

NHPC is regularly following-up with Sikkim, JUVNL,GRIDCO,NBPDCL,SBPDCL & DVC to extend the BPSA up to 35 years from COD of last unit or balance normative life of Rangit & Teesta-V Power Stations, whichever is later on existing terms and conditions . NHPC has not received the consent of either of the beneficiary till date.

In the last Commercial Committee meetings, representative from JUSNL was not present. NBPDCL/SBPDCL, GRIDCO, Sikkim and DVC informed that the issue is under process at their end and the issue will be resolved at the earliest.

4) Signing of PPA in respect of Teesta-IV H.E.Project.

Signing of Power Purchase Agreement is pending with GRIDCO, SBPDCL & NBPDCL inspite of regular follow up with these discoms. As per the request of many beneficiaries for withdrawal of 'Payment security clause' in the form of 'Default Escrow Arrangement', NHPC replaced this from draft PPA by adopting L.C. as a payment security mechanism.

In the last Commercial Committee meetings, NBPDCL/SBPDCL informed that the issue would be resolved shortly. GRIDCO representative informed that the matter was under consideration of management and would take some more time.

5) Signing of PPA in respect of Tawang H.E.Project, Stage-I & II.

Signing of Power Purchase Agreement is pending with GRIDCO, SBPDCL, NBPDCL, WBSEDCL, Sikkim and JUVNL in spite of regular follow up with these discoms. As per the request of some of the discoms for withdrawal of 'Payment security Mechanism' in the form of 'Default Escrow Arrangement', NHPC has withdrawn this clause from draft PPA in respect of future projects also.

In the last Commercial Committee meetings, Representative of GRIDCO, SBPDCL/NBPDCL, WBSEDCL and Sikkim informed that the issue was under consideration and an outcome is likely soon.

6) Deviation Charges (Issue with ERLDC).

At the time of issue of revision of deviation charges the whole amount pertaining to the concerned week are shown and the date of revision is considered as date of issue of deviation statement. As a result, original date of deviation statement get overlooked which result in difference in calculation of interest. It is suggested that only the differential amount i.e. difference of amount of original deviation charges and revised deviation charges may be shown in the revision statement so that interest of deviation charges may be calculated accordingly. NHPC has recorded this point on reconciliation statement for a number of times but appropriate action is still awaited.

In the last Commercial Committee meeting, it was clarified to NHPC that they would not be commercially affected due the process being followed for revision of Deviation Accounts.

7) Combining of deviation charges statement (Issue with WBSLDC).

After commissioning of two units of TLDP – IV, Receivable & Payable amounts of deviation charges of TLDP-III & TLDP-IV are being shown separately in the accounting of deviation charges statement by WBSLDC. It has been observed that overall amount for both power stations is receivable but for individual power station it is payable. In that case, in spite of overall net amount receivable we have to pay for payable amount of individual power station. In this regard, it is requested that net payable & receivable amount may also be shown in the summery sheet of deviation charges so that payment can be released on the basis of that statement.
WBSETCL/WBSLDC may opine.

In the last Commercial Committee meeting this agenda could not be taken up due to non participation of WBSETCL/SLDC. However, NHPC was requested to speak to WBSLDC for resolution of the issue.

ITEM NO. C7:	**State Transmission Utility Charges and Losses applicable for STOA for FY 2016-17**

As available with ERLDC, the STU charges and losses as available with ERLDC are as given below. Constituents are requested to kindly intimate ERLDC in case of any change in the fugures at the earliest.

Name of STU	**Intra-State Transmission Charges**	**TRANSMISSION LOSS (For Embedded entities)**
WBSETCL	*	3.70%
DVC	Rs. 80 / MWh	4.30%
OPTCL	Rs. 62.5 / MWh	3.70%
JSEB	*	#
BSEB	*	#
SIKKIM	*	#

N.B:
* Indicates rates yet to be furnished by concerned State Utilities. Transmission Charges for use of state network shall be Payable @ Rs.80 per MWh as per subsequent Amendment regulation 2009-dated 20.05.2009.
# Not yet intimated by the State Utility.

ITEM NO. C8:	**Time correction of SEMs in Eastern Region**

The drifting of meter time was important in commercial terms since the reading for a block for a time drifted meter might not be true and lead to erroneous calculation of Deviation Charge for that constituent. Further, it was decided to keep this as a standing agenda in Commercial Sub Committee meetings for monitoring. List of Time drifted (more than 5-6 min) meters in ER is enclosed in **Annexure-C8**.
In the 31st CCM, Powergrid informed that for new meters to be procured, technical feasibility of bulk time correction facility have been kept. For existing meters however, no bulk time correction was technically feasible. Constituents will have to make one minute adjustments per week to reduce the time drift and furnish the monthly status of time correction activities.
Angul & Rengali from PGCIL, APNRL, JLHEP, GMR, Chuzachen, Talcher NTPC, Sagardighi WBSEDCL and Miramundali(OPTCL) has done the necessary Time correction. Others are also requested to do the necessary Time Correction.

In the Commercial Committee meeting held on 10.06.2016, JITPL requested PGCIL to once demonstrate the time correction feature. PGCIL agreed. ERLDC informed the list at Annexure was a latest one. It was observed that significant proportion of time drifted meters belonged to PGCIL jurisdiction. PGCIL was advised to take necessary action to get the time corrected on a regular basis.

ITEM NO. C9:	Deputation of Nodal Officers by Regional Entities

All Regional entities is requested to intimate the contact details of the Nodal Officer who could coordinate with their sites and ERLDC to ensure the following:

- Under - recording of SEM data due to reasons such as CT/PT input problems
- Polarity reversal
- Change in CT/PT ratio
- Meter replacements
- Completeness w.r.t no of meters and no of days
- Checking of time drift in meters: correction and reporting to RLDC
- Data non-availability due to reasons such as outage of Feeder etc.

It was requested to furnish the details like Name, designation, Mailing address, Landline No, Fax No, Email Id, Mobile No etc. to ERLDC for smooth transaction of SEM data.
So far details of Nodal person only from Teesta, NTPC ER-I(HQ), Talcher NTPC and GRIDCO have been received by ERLDC.

In the Commercial Committee meeting held on 10.06.2016, DVC provided the details of the nodal person. NHPC informed that they have already submitted the name of the nodal person for Rangit. All constituents were requested to submit the name of nodal person at the earliest.
PGCIL requested ERLDC to share the list of nodal persons for taking up meter/AMR related issues. ERLDC agreed.

Deliberation in the TCC meeting

BSPTCL informed that Shri. Jitesh Kumar, EEE/CRITL, BSPTCL will be the nodal officer.

ITEM NO. C10:	Declaration of Commercial Operation of Transmission Elements-Agenda submitted by Powergrid

The list of transmission elements declared under Commercial operation is at **Annexure-C10.**

Members may please note.

ITEM NO. C11:	Implementation of Automatic Meter Reading in Eastern Region

AMRs have been installed at 97 locations in 1st phase and 25 locations in 2nd phase in Eastern region. Due to addition of new substations/generating stations/transmission lines in Eastern Region, another 25 new locations required to be added under AMR project as 3rd phase of implementation.

Inclusion of new locations and total cost involvement(including 5 years of AMC) for AMR 3rd phase were last discussed in 31st TCC/ERPC OCC meeting held on 13.11.15/14.11.15 wherein TCC/ERPC approved the cost of approximately Rs. 1.29 Cr ± 10%. Further ERLDC also furnished the list of meters already included in AMR and having problems in data sending(to be considered in AMC) along with Meters in new locations to be provided AMR and new meters to be provided AMR in existing locations due to addition of new lines. List of new locations with SEMs and Future locations to be incorporated are enclosed in **Annexure-C11.**

In the last Commercial Sub Committee meeting, ERLDC informed that they have already sent a list of meters for AMR to PGCIL. PGCIL informed that although the order to the vendor was placed for 16 locations, now the required number of locations had increased to 25 and negotiations were going on with the vendor for costs. The same would be placed for approval when received. MS informed that new meters may be needed to be integrated for Kanti Bidyut Utpadan Nigam Station of NTPC and requested ERLDC and PGCIL to consider them also.

ITEM NO. C12:	**Matters related to Standing Committee Meeting on Power System Planning For Eastern Region**

As per the decision of 31st & 32nd TCC/ERPC the agenda items of the 18th SCM was deliberated in detail in 4th SSCM held on 06.06.2016 at ERPC, Kolkata. The deliberations of SSCM along with salient features on the important issues are placed here for information of the members:

1.0: Transmission System Strengthening in Indian System for Transfer of power from Mangdechhu Hydroelectric Project in Bhutan – Multi Circuit at Alipurduar end

The transmission system strengthening in Indian system for transfer of power from Mangdechhu HEP was approved in the 16th SCM of ER held on 02nd May 2014 and in the 27th TCC/ERPC held on 30th-31st May 2014 with following scope of works:

(a) Jigmeling – Alipurduar 400kV D/c (Quad) line (Indian Portion)
(b) Alipurduar – Siliguri 400kV D/c (Quad) line
(c) Kishanganj – Darbhanga 400kV D/c (Quad) line

As decided in the 33rd Empowered Committee Meeting, element (a) is being implemented by POWERGRID, whereas elements (b) and (c) are being implemented through tariff based competitive bidding (TBCB). The TBCB portion has already been awarded to M/s Kalpatru and procurement activities for POWERGRID portion has already commenced.

POWERGRID has informed that severe right of way problems are being faced for line entry at Alipurduar S/s. In view of the same, it is proposed to construct the Jigmeling – Alipurduar and Alipurduar – Siliguri 400 kV lines on Multi- Circuit (M/c) tower for about 5 km at Alipurduar end. The M/c portion would be built (along with conductor stringing in all four circuits), owned, operated and maintained by POWERGRID. The Alipurduar – Siliguri line being built under TBCB would be terminated at start of the M/c portion. Accordingly, the coordinates of starting point of M/c portion has been provided in RfP document for termination of Alipurduar – Siliguri line.

In view of the above, members may approve the construction, operation and maintenance of Jigmeling – Alipurduar 400kV D/c line and Alipurduar – Siliguri 400kV D/c (Quad) line on Multi-Circuit (M/c) tower for about 5km at Alipurduar end by POWERGRID along with stringing of conductors in all four circuits.

In 4th SSCM, members agreed the following:

- *The 400 kV D/C Alipurduar – Siliguri line being built under TBCB would be terminated at start of the Multi-Circuit portion.*
- *Construction of Jigmeling – Alipurduar 400kV D/c line and Alipurduar – Siliguri 400kV D/c (Quad) line on Multi-Circuit (M/c) tower for about 5km at Alipurduar end by*

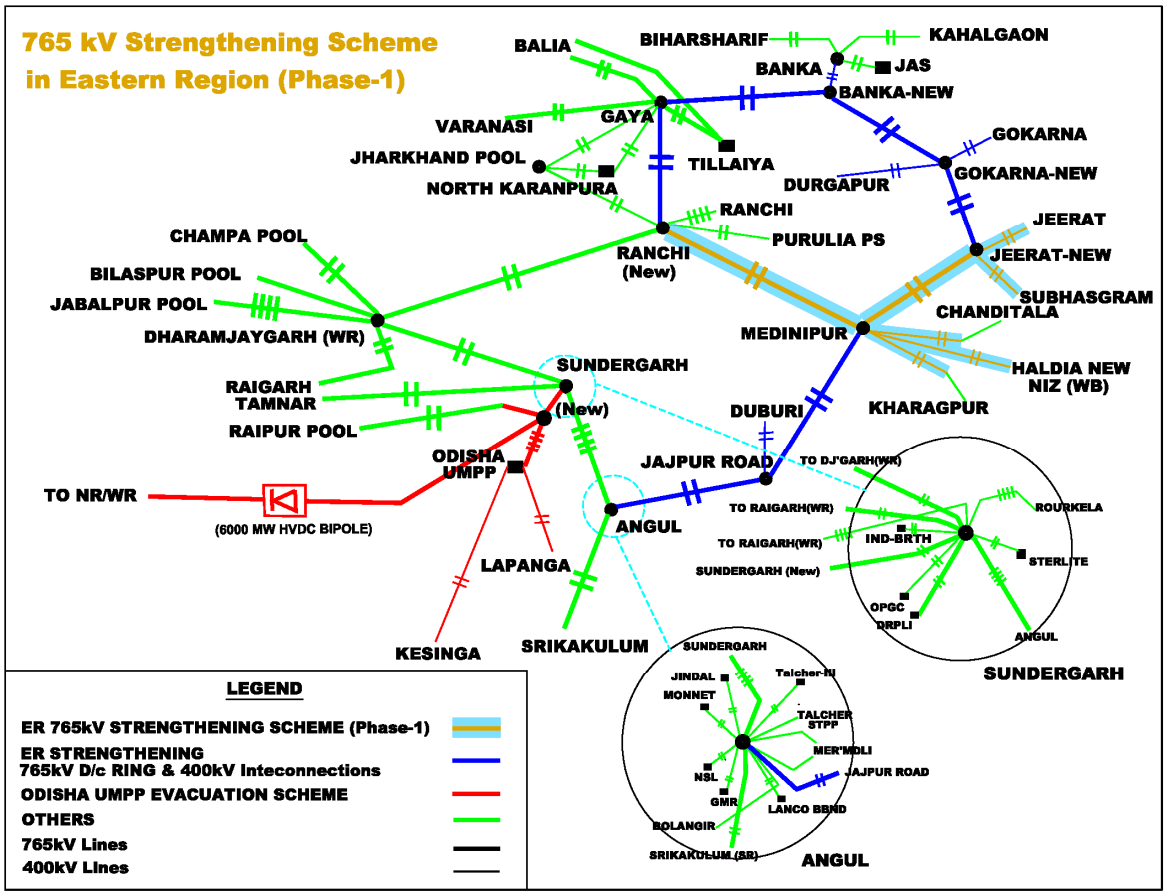
POWERGRID along with stringing of conductors in all four circuits.

- *Operation and maintenance of Multi-Circuit (M/c) tower for about 5km at Alipurduar end by POWERGRID.*

2.0: Change of scope of the scheme under Eastern Region Strengthening Scheme-XVIII (ERSS-XVIII):

ERSS-XVIII scheme: 765 kV System Strengthening in ER (Phase-I) was agreed in the 17th meeting of the Standing Committee of Power System Planning in Eastern Region (SCPSPER) held on 25th May, 2015 at New Delhi with the scope of works as given below:

i. Establishment of 765/400kV, 2x1500MVA substations at Medinipur and Jeerat (New)
ii. Ranchi (New) – Medinipur 765kV D/c line
iii. Medinipur – Jeerat (New) 765kV D/c line
iv. Medinipur – Haldia New (NIZ) (WBSETCL) 400kV D/c line (quad/HTLS)
v. LILO of Chandithala – Kharagpur 400kV D/c line at Medinipur
vi. Jeerat (New) – Subhasgram 400 kV D/c line (quad/HTLS)
vii. Jeerat (New) – Jeerat 400 kV D/c line (quad/HTLS)
viii. LILO of Jeerat (WB) – Subhasgram 400 kV S/c section at Rajarhat



In 4th SSCM, members agreed the following:

- *Deletion of Medinipur-Haldia NIZ 400kV D/C line along with associated bays at Medinipur from the scope of ERSS-XVIII,*
- *Construction of GIS line bays at Jeerat (WBSETCL) for termination of Jeerat (New)-Jeerat (WBSETCL) 400 kV D/C line in view of space constraints at Jeerat (WBSETCL).*
- *Provision of one spare unit of 80 MVAr reactor at Medinipur and Jeerat New end of Ranchi- Medinipur 765 kV D/C line and Medinipur - Jeerat (New) 765kV D/c line,*

WBSETCL informed that the data of load growth has been submitted after the finalization of 19th EPS.

BSPTCL informed that the data of future load growth has been submitted to CEA.

3.0: Ranchi (New) – Purulia PSP 400kV D/c line under ERSS-VII

Ranchi (New) – Purulia PSP 400kV D/c line under ERSS-VII is being implemented through TBCB by M/s Purulia Kharagpur Transmission Company Ltd. (PKTCL) (a subsidiary of M/s Sterlite Grid). The line was approved for termination at GIS switchyard of Purulia PSP. However, WBSETCL informed that there are space constraints at Purulia PSP generation switchyard. WBSETCL also informed that they are establishing New Purulia 400 kV GIS near Purulia PSP generation project by LILO of one circuit of Purulia PSP-Arambagh 400 kV D/C line and has proposed to PKTCL to terminate the line at New Purulia GIS substation instead of earlier approved Purulia PSP generation switchyard. 400 kV line bays for termination of the line at both ends are under the scope POWERGRID. The change in location of the termination point at Purulia end has already been agreed in a meeting taken by Member (PS), CEA on 25-6-2015.

Here, it is also to mention that line bays at New Purulia and Kharagpur substations are being implemented by WBSETCL as consultancy work of POWERGRID. The awarded cost of 2 nos. AIS line bays at Kharagpur is about Rs. 10 crore, whereas the awarded cost of 2 nos. GIS line bays at New Purulia is about Rs. 35 crore.

Further, in a meeting taken by Member (PS), CEA on 29-3-2016, WBSETCL informed that New Purulia GIS is expected to be commissioned by Nov., 2016. M/s Sterlite informed that the Ranchi-New Purulia 400 kV D/C line will be completed by May, 2016. In view of above, Ranchi-New Purulia 400 kV D/C cannot be charged because of want of 2 no. 400 kV GIS bays at New Purulia GIS. In order that the line does not remain unutilised for about six months or till the New Purulia GIS is commissioned, it was agreed that as an interim arrangement, Ranchi-New Purulia 400 kV D/C line will be connected with one circuit of Purulia PSP-Arambagh 400 kV D/C line at suitable location, so as to form Ranchi- Purulia PSP (about 115 km), Ranchi-Arambagh (about 327 km) and Purulia PSP-Arambagh 400 kV lines. This interim arrangement would be implemented by M/s Sterlite. M/s PKTCL may approach CERC for revision of tariff for the additional cost, if any, incurred.

In the above meeting, it was also informed that another line under ERSS-VII being implemented by M/s PKTCL i.e. Kharagpur (WB)-Chaibasa (PG) 400 kV D/C line is ready and the bays under the scope of POWERGRID at Kharagpur (WB) implemented by WBSETCL as deposit work are not ready. In order to avoid stranding of Kharagpur (WB)-Chaibasa (PG) 400 kV D/C line till the bays at Kharagpur (WB) are commissioned, termination of the line by LILO of one circuit of Kharagpur-Kolaghat 400 kV D/c line at Kharagpur end so as to form Kharagpur (WB)-Chaibasa (PG), Chaibasa (PG)-Kologhat and Kharagpur-Kolaghat 400 kV lines as an interim arrangement was also agreed in the meeting. This interim arrangement would be implemented by M/s PKTCL with no addition cost to be recovered as tariff, was also agreed in the meeting.
The decisions of the meeting are given below:

a) PGCIL shall submit following studies:

i. Line charging studies indicating that the Ranchi – Arambagh circuit (317 km) can be charged without any constraints. However, if there are any constraints / conditions for charging, the same may be specified upfront in the studies.
ii. DOV studies indicating that the dynamic over voltage remains within specified limit (i.e. 1.4 pu) during load throw-off. The studies may also indicate the loading assumed on the

line prior to load throw-off and the maximum load throw-off admissible for the DOVs. (The lines in these studies is a combination of Ranchi-Purulia and Ranchi-Purulia-Arambag and accordingly all the three nodes i.e Ranchi, Purulia and Arambag would need to be represented while carrying out DOV studies)

iii. It is understood that the line reactors (i.e. 50MVAr) at Ranchi end of this line do not have NGR. So, POWERGRID may also indicate that there would not be any problem during auto reclosing under single line to ground fault without the NGR.

b) M/s PKTCL would terminate their Ranchi-Purulia PSP 400 kV D/C line at New Purulia GIS of WBSETCL. This change in transmission scope would be finalised in the next meeting of SCPSPER and would got noted in the next Empowered committee meeting on Transmission.

c) In view of anticipated delay in commissioning of New Purulia 400 kV GIS by WBSETCL, M/s Sterlite Grid (PKTCL) may connect Ranchi-New Purulia 400 kV D/C line at a suitable location by LILO of one circuit of Purulia-Arambagh D/C line of WBSETCL as an interim arrangement till the commissioning of 2 no. 400 kV GIS bays at New Purulia. Based on the studies furnished by PGCIL (as mentioned above), the interim arrangement would also be formalized in the next meeting of SCPSPER and would got noted in the next meeting of the Empowered Committee on Transmission.

Regarding recovery of additional cost, if any, due to these changes, PKTCL may take up with CERC.

d) WBSEDCL and WBSETCL would submit SLD and general arrangement (GA) layout of the Purulia PSP and Arambag S/S respectively to CEA through E-mail.

e) PKTCL would interconnect their Kharagpur (WB)-Chiabasa (PG) 400 kV D/C line by LILO one circuit of Kharagpur (WB)-Kolaghat 400 kV D/C line near Kharagpur end as an interim arrangement till the 400 kV bays at Kharagpur (WB) are commissioned with no additional cost to be recovered as tariff. The interim arrangement would be formalized in next meeting of SCPSPER.

f) WBSETCL would furnish the load flow/system studies results in respect of New Purulia 400 kV s/s and associated transmission line to CEA, urgently, so that same could be taken in the forthcoming meeting of the SCPSP ER.

g) PKTCL will provide tower location and route alignments near the Purulia PSP and New Purulia for the (i) original Ranchi-Purulia PSP line (ii) re-alignment to New Purulia and (iii) alignment for terminating LILO in the Purulia PSP-Arambag line.

In 4th SSCM, after detailed deliberation, members agreed the following:

- *Termination of Ranchi (New) – Purulia PSP 400kV D/c line to New Purulia instead of Purulia PSP by M/s PKTCL,*
- *2 no. 400 kV GIS line bays at New Purulia in place of Purulia PSP for termination of Ranchi (New) – New Purulia 400kV D/c line by POWERGRID.*
- *WBSETCl will establish 400KV GIS at New Purulia by LILO of 400KV Purulia-Arambag 400 KV D/C line at New Purulia.*

WBSETCL informed that New Purulia GIS is expected to be commissioned by Nov., 2016.

It was informed that the Ranchi-New Purulia 400 kV D/C line will be completed by May, 2016. In view of above till the commissioning of 400 kV bays at New Purulia GIS, Ranchi-New Purulia 400 kV D/C line will be terminated at a suitable location by LILO of one circuit of Purulia-Arambagh D/C line of WBSETCL as an interim arrangement.

Further it was informed that Kharagpur (WB)-Chaibasa (PG) 400 kV D/C line is ready and the bays at Kharagpur (WB), under the scope of POWERGRID implemented by WBSETCL as deposit work are not ready. Therefore as an interim arrangement. Kharagpur (WB)-Chaibasa (PG) 400 kV D/C will be terminated by LILO of one circuit of Kharagpur-Kolaghat 400 kV D/c line at Kharagpur end so as to form Kharagpur (WB)-Chaibasa (PG), Chaibasa (PG)-Kologhat and Kharagpur-Kolaghat 400 kV lines.

Both the above mentioned interim arrangements will be executed subject to clarification from CERC in the context of 4th Amendment of IEGC Grid Code which states under clause 6.3A as given below:

Quote

" 4. Date of commercial operation in relation to an inter-State Transmission System or an element thereof shall mean the date declared by the transmission licensee from 0000 hour of which an element of the transmission system is in regular service after successful trial operation for transmitting electricity and communication signal from the sending end to the receiving end:

Provided that:

……..…..

(i) In case of inter-State Transmission System executed through Tariff Based Competitive Bidding, the transmission licensee shall declare COD of the ISTS in accordance with the provisions of the Transmission Service Agreement.

(ii)……

(iii)……

(iv) In case a transmission system or an element thereof is prevented from regular service on or before the Scheduled COD for reasons not attributable to the transmission licensee or its supplier or its contractors but is on account of the delay in commissioning of the concerned generating station or in commissioning of the upstream or downstream transmission system of other transmission licensee, the transmission licensee shall approach the Commission through an appropriate application for approval of the date of commercial operation of such transmission system or an element thereof."

……..…..…

Unquote

Concerned executors were requested to file petition before CERC for the purpose.

4.0: Common Transmission System for Phase-II generation project in Odisha

POWERGRID has informed that following transmission system to be implemented by POWERGRID was agreed in earlier SCMs, as a part of common transmission system for phase-II generation projects in Odisha:

(a) Addition of 2x1500MVA, 765/400kV ICTs with associated bays at Jharsuguda (Sundargarh)
(b) Addition of 2x1500MVA, 765/400kV ICTs with associated bays at Angul

(c) Split bus arrangement at 400 kV and 765 kV bus at both Angul and Jharsuguda (Sundargarh) substations [in GIS at Jharsuguda (Sundargarh)]
(d) LILO of both circuits of Rourkela - Raigarh 400kV D/c (2nd line) at Jharsuguda (Sundargarh) substation with associated line bays in GIS at Jharsuguda (Sundargarh) substation

During walk over survey for LILO of both circuits of Rourkela - Raigarh 400kV D/c (2nd line) at Jharsuguda (Sundargarh) S/s, severe RoW constraints have been observed due to large number of 400kV and 765kV lines being terminated at Jharsuguda. Additionally, forest involvement has also been envisaged. Accordingly, for the said LILO, about 17km of Multi-Circuit portion has been envisaged in the corridor.

In 4th SSCM, members agreed the following:

- *LILO of both circuits of Rourkela – Raigarh 400kV D/c (2nd line) at Jharsuguda (Sundargarh) on multi-circuit tower for about 17km along with associated line bays in GIS at Jharsuguda.*
- *Implementation of associated bays at 400 kV and 765 kV levels in GIS for 2x1500MVA, 765/400kV ICTs at Jharsuguda S/s*
- *Members did not agree for keeping additional Spare single phase transformer unit (765/400kV, 500MVA) at Angul and Jharsuguda substations for 2x1500MVA ICTs.*

5.0: Eastern Region System strengthening Scheme – XVII (ERSS-XVII)

ERSS-XVII scheme was approved in the 17th standing committee meeting of ER held on 25th May 2015 with following scope of works:

(i) Augmentation of transformation capacity at POWERGRID substations:

(a) Installation of 3rd 400/220 kV, 1x315 MVA ICT at Durgapur Substation
(b) Replacement of 400/220 kV, 2x315MVA ICTs at Malda Substation with 400/220kV, 2x500 MVA ICTs
(c) Installation of 3rd 400/220 kV, 1x315MVA ICT at New Siliguri Substation
(d) Replacement of 400/220 kV, 2x315MVA ICTs at Jeypore
(e) Substation with 400/220 kV, 2x500MVA ICTs
(f) Replacement of 400/220 kV, 2x315MVA ICTs at Rourkela Substation with 400/220 kV, 2x500MVA ICTs
(g) Installation of 400/220 kV, 1x500 MVA ICT at Gaya Substation

Note: Out of 6 ICTs of 315MVA released after replacement at Malda, Jeypore and Rourkela substations, one each to be used for installation at Durgapur and New Siliguri substations. The other 4 would be utilized as regional spare. In case of space constraint GIS bays may be used wherever required.

(ii) Conversion of fixed line reactors to switchable Line reactor

(a) Lakhisarai – Biharsharif 400kV D/c: 50MVAr fixed line reactor at Biharsharif end to be converted to switchable line reactor
(b) Keonjhar – Rengali 400kV S/c: 63MVAr fixed line reactor at Rengali end to be converted to switchable line reactor

(iii) Additional scope of work at under construction 400/220kV Daltonganj (POWERGRID) substation (being implemented under ERSS-III)

(a) Creation of 132kV level at Daltonganj (POWERGRID) substation along with 2x160MVA, 220/132kV ICT and associated ICT bays
(b) 4 nos. of 132 kV line bays

(iv) Reconductoring of Maithon RB - Maithon 400kV D/c line

The existing Twin ACSR Moose line needs to be reconductored with Twin HTLS conductor of ampacity equivalent to that of Quad ACSR Moose: 4 x 798A (for 45°C ambient temperature and 85°C maximum conductor temperature)

(v) Bypassing arrangement of LILO of 400kV lines at Angul

LILO of Meramundali – Bolangir/Jeypore 400kV S/c line and LILO of one circuit of Talcher – Meramundali 400 kV D/c line has been done at Angul 765/400kV substation. It was proposed to establish a switching arrangement at Angul substation such that, the above 400kV LILOs may be operated either by-passing Angul substation or terminating at Angul sub-station as and when required depending upon the power flow condition.

The final scope of works for two parts of ERSS-XVII scheme shall be as follows:

- ERSS-XVII (Part-A)

(i) 2x160MVA, 220/132kV ICT along with associated bays at Daltonganj sub-station
(ii) 4 nos. of 132 kV line bays

- ERSS-XVII (Part-B)

(i) Augmentation of transformation capacity at POWERGRID substations:

(a) Installation of 400/220 kV, 1x500 MVA ICT at Gaya S/s (400kV bay in AIS and 220kV bay in GIS)
(b) Replacement of 400/220kV, 2x315MVA ICTs at Malda S/s with 400/220kV, 2x500 MVA ICTs
(c) Installation of 3rd 400/220kV, 1x315MVA ICT at New Siliguri S/s: to be sourced from pool of spare ICTs (400kV bay in GIS and 220kV bay in AIS)
(d) Installation of 3rd 400/220kV, 1x315 MVA ICT at Durgapur S/s: to be sourced from pool of spare ICTs
(e) Installation of 400/220kV, 2x315MVA ICTs at Jeypore S/s (one each in parallel to the existing ICTs): to be sourced from pool of spare ICTs
(f) Installation of 400/220kV, 2x315MVA ICTs at Rourkela S/s (one each in parallel to the existing ICTs): to be sourced from pool of spare ICTs

Note: For elements from (c) to (f) above, sourcing of old ICTs from pool of spare ICTs shall be as given below.

New location for installation of old	Source Location of Old ICT
New Siliguri (ICT-3)	Malda (ICT-3)
Durgapur (ICT-3)	Purnea (ICT-2)
Jeypore (ICT-3)	Patna (ICT-2)

Jeypore (ICT-4)	Sasaram (ICT-2)
Rourkela (ICT-3)	Ballabhgarh (ICT-1)
Rourkela (ICT-4)	Mandola (ICT-4)

(ii) Conversion of 63MVAr fixed line reactor at Rengali end of Keonjhar – Rengali 400kV S/c line to bus reactor

(iii) Reconductoring of Maithon RB - Maithon 400kV D/c line

The existing Twin ACSR Moose line needs to be reconductored with Twin HTLS conductor of ampacity equivalent to that of Quad ACSR Moose: 4 x 798A (for 45°C ambient temperature and 85°C maximum conductor temperature)

(iv) Bypassing arrangement of LILO of 400kV lines at Angul

LILO of Meramundali – Bolangir/Jeypore 400kV S/c line and LILO of one circuit of Talcher – Meramundali 400 kV D/c line has been done at Angul 765/400kV substation. It was proposed to establish a switching arrangement at Angul substation such that, the above 400kV LILOs may be operated either by-passing Angul substation or terminating at Angul sub-station as and when required depending upon the power flow condition.

In 4th SSCM, the followings were deliberated:

(i) Members agreed to the above proposal of ICT augmentation. However, Powergrid/CTU was advised to explore for space availability for two additional bays at 400 kV Jeypore and Rourkela S/s for augmentation of ICTs.
(ii) ERLDC expressed that the 63 MVAr line reactor of Keonjhar – Rengali 400kV S/c may be kept as fixed reactor at Rengali end.
(iii) Reconductoring of Maithon RB - Maithon 400kV D/c line was agreed.
(iv) CEA/CTU was advised to explain the by-passing arrangement of *LILO* of 400kV lines at Angul *with SLD/ schematic diagram during SCM meeting and was further requested to implement the scheme at the earliest.*

6.0: Installation of 400/220kV, 500MVA (4th) ICT at Biharsharif

POWERGRID has informed that the peak loading on 400/220kV, 3x315MVA ICTs at Biharsharif S/s has been constantly observed in the range of about 700-750MW in recent times. Further, bus split at Biharsharif is also under advance stage of implementation. Subsequent to bus splitting, one section would have only one ICT. Thus, keeping in view the loading of ICTs and the requirement of meeting the N-1 security criteria, it is proposed to install 400/220kV, 500MVA ICT at Biharsharif S/s in the bus section having one 315MVA ICT

In 4th SSCM, members agreed to the proposal.

Members requsted CEA/CTU to share the study results of the bus splitting arrangement at Maithon, Durgapur, Kahalgaon and Biharsharif with fault calculations.

BSPTCL expressed that in view of up-gradatiiion of 220 kV Biharshariff-Tenughat S/C line into 400 kV line and load growth of Bihar, there may be requirement of additional augmentation of 400/220 kV ICTs at Biharshariff S/s to fulfill the (n-1) criterion and requested CEA/CTU to look

into the matter.

On query, JUSNL informed that the upgradation of 220 kV Biharshariff-Tenughat S/C into 400 kV line is under execution by Powergrid and will be completed after the clearance of payment. JUSNL assured release of payment within a week.

7.0: Standardisation of OPGW in lieu of One Earth wire in all Transmission lines

The Power System requirement for Communication is increasing multi fold due to:

(a) Special Protection Scheme
(b) Ever increasing data reporting to Load Dispatch Centre
(c) Phasor measurements based data collection and reporting
(d) Remote monitoring/operation of sub-station/elements
(e) Differential protection on Lines

The practice of putting fibre in select lines leads to situation where station connectivity is held up due to identified line delay, LILO of under construction line etc.

OPGW installation on existing lines is taking long time/delayed due to shut down, ROW issues as well as capacity constraints of executing agencies.

It is proposed to include one 24 Fibre (OPGW) in all transmission lines which will ensure availability of wideband Communication from all substations to cater bandwidth for various power system application for which communication equipment (SDH– STM-16) shall be provided at all upcoming substations.

In 4th SSCM, Members accepted the importance of the scheme but it was emerged that there will be fund constraints for implementation of the above.

CEA advised all the constituents to prepare the list of such lines and approach for PSDF funding as communication system is of utmost importance.

8.0: Downstream 220kV or 132kV system development by STUs from the various commissioned and on-going ISTS substations

Under the ERSS-III scheme, following new 400kV substations have been / are being implemented by POWERGRID:

- 2x200 MVA, 400/132kV S/s at Lakhisarai and Banka in Bihar
- 2x315 MVA, 400/220kV S/s at Chaibasa in Jharkhand
- 2x315MVA+2x160MVA, 400/220/132kV S/s at Daltonganj in Jharkhand
- 2x315 MVA, 400/220kV S/s at Bolangir & Keonjhar and 2x500 MVA, 400/220kV S/s at Pandiabil in Odisha

The substations at Lakhisarai, Banka, Chaibasa, Bolangir and Keonjhar have been commissioned and that at Pandiabil is expected to be commissioned shortly. Daltonganj S/s is expected by Mar'17. Following downlinking network along with expected commissioning schedule was informed by STUs in the previous meeting(s):

Additionally, Bihar and West Bengal may indicate status of downlinking network from following

under construction ISTS substations:

(a) Kishanganj: 2x500MVA, 400/220kV – Bihar
    (i) Kishanganj (POWERGRID) – Kishanganj (BSPTCL) 220kV 2xD/c

(b) Darbhanga: 2x500MVA, 400/220kV – Bihar
    (i) Darbhanga (ISTS) – Darbhanga (BSPTCL) 220kV D/c
    (ii) Darbhanga (ISTS) – Motipur 220kV D/c
    (iii) Darbhanga (ISTS) – Samastipur New 220kV D/c (S/c strung)
    (iv) Darbhanga (ISTS) – Laukhi (earlier Supaul New) 220kV D/c

(c) Motihari: 2x200MVA, 400/132kV – Bihar
    (i) Motihari (ISTS) – Motihari (BSPTCL) 132kV D/c
    (ii) Motihari (ISTS) – Betiah 132kV D/c
    (iii) Motihari (ISTS) – Raxaul 132kV D/c

(d) Alipurduar: 2x315MVA, 400/220kV – West Bengal

    (i) Alipurduar (POWERGRID) – Alipurduar (State) 220kV D/c

States may also indicate the planned downlinking network from following under construction substations:

(a) Rajarhat 400/220kV S/s – West Bengal
(b) Dhanbad 400/220kV S/s – Jharkhand

In 4th SSCM, followings were updated:

BSPTCL updated the list as follows:

Sl. No.	Name of the transmission line	Completion schedule
1.	**2x200 MVA, 400/132 kV Banka sub-station**	
a.	LILO of 1st circuit of Banka (BSPTCL)-Sabour (BSPTCL) 132 kV D/C line at Banka (PG)	Charged.
b.	LILO of 2nd circuit of Banka (BSPTCL)-Sabour (BSPTCL) 132 kV D/C line at Banka (PG)	***Line & bays completed. Powergrid to terminate the line.***
c.	132 kV Banka (PG)-Sultanganj (BSPTCL) line-I	Completed
d.	132 kV Banka (PG)-Sultanganj (BSPTCL) line-II	Completed
2.	**The 2x200 MVA, 400/132 kV Lakhisarai sub-station**	
a.	132kV Lakhisarai(PG)-Lakhisarai(BSPTCL)D/C line	Charged
b.	132 kV Lakhisarai-Jamui (BSPTCL) D/C line	*Charged on 05.10.2015*

OPTCL updated the list as follows:

Sl. No.	Name of the transmission line	Completion schedule
1.	**2x315MVA 400/220kV Bolangir S/s**	
a.	LILO of one circuit of Sadeipalli-Kesinga220 kV D/C line at Bolangir S/S	Only 7 towers left (Severe ROW problem). By Dec, 2016.
b.	LILO of one circuit of Katapalli-Sadeipalli220 kV	**Charged on 04.05.16**

	D/C line at Bolangir S/S	
2.	**400/220 kV Keonjhar S/S**	
a.	Keonjhar (PG)-Keonjhar (OPTCL) 220 kV D/C line	By 2017.
b.	Keonjhar (PG)-Turumunga(OPTCL) 220kV D/C line	By 2019.
3.	**400/220kV Pandiabil Grid S/s: Expected by June'16**	
a.	Pratapsasan(OPTCL)-Pandiabil (PG) 220 kV D/C line	Dec, 2017.
b.	LILO of one circuit of Atri-Puri (Samangara) 220 kV D/C line at Pandiabil (PG)	**September, 2016**

JUSNL updated the list as follows:

Sl. No.	**Name of the transmission line**	**Completion schedule**
1.	**Chaibasa 400/220kV S/s**	
a.	Chaibasa (POWERGRID) – Chaibasa (JUSNL) 220kV D/c	Completed.
b.	Chaibasa (POWERGRID) – Ramchandrapur (JUSNL) 220kV D/c	**September, 2016**
2.	**Daltonganj 400/220/132kV S/s: Expected by Mar'17**	
a.	Daltonganj (POWERGRID) – Latehar 220kV D/c	By 2017.
b.	Daltonganj (POWERGRID) – Garhwa 220kV D/c	**Matching with S/s**
c	Daltonganj (POWERGRID) – Daltonganj (JUSNL) 132kV D/c	**Matching with S/s**
d	Daltonganj (POWERGRID) – Chatarpur/Lesliganj 132kV D/c	**Matching with S/s**
3.	**Dhanbad 400/220 kV S/s: Awarded under TBCB**	
a.	Dhanbad – Dhanbad (Govindpur) (JUSNL) 220kV D/c	**Matching with S/s**

On query, Powergrid informed that 220 kV bays at 2x500MVA, 400/220kV Kishanganj S/s are expected by June-2016.

BSPTCL informed that all the down linking lines of 2x500MVA, 400/220kV Kishanganj & Darbhanga S/s and 2x200MVA, 400/132kV Motihari S/s were matching with the commissioning of Sub-stations and BSPTCL will be able to draw power from day one of the commissioning.

WBSETCL updated that

Sl. No.	**Name of the transmission line**	**Completion schedule**
1.	**2x315MVA, 400/220kV Alipurduar sub-station**	
a.	Alipurduar (POWERGRID) – Alipurduar (WBSETCL) 220kV D/c (HTLS)	December, 2016.
2.	**2x500MVA, 400/220kV Rajarhat West Bengal S/S- Expected by Oct, 2016**	
a.	Rajarhat-N. Town-3 (WBSETCL) 220 kV D/C line	Matching
b.	Rajarhat-N. Town-2 (WBSETCL) 220 kV D/C line	*June, 2018*
c.	Rajarhat- Barasat (WBSETCL) 220 kV D/C line	*June, 2018*

9.0: 2 nos. 400kV line bays at Muzaffarpur for Muzaffarpur – Dhalkebar 400kV D/c line

The interconnection between India and Nepal through Muzaffarpur – Dhalkebar (Nepal) 400kV D/c (to be initially operated at 220kV) line has been recently commissioned and is being operated at 132 kV, due to delay in implementation of 220 kV S/S at Dhalkebar (Nepal. In the 2nd Joint Steering Committee meeting on India-Nepal Cooperation in Power Sector held on 29th Jan 2016 at Kathmandu, Nepal, it was decided to operate the line at 220kV level by Oct 2016 and at rated voltage level of 400kV by Dec 2017. To operate the line at 400kV, 2 nos. 400kV line bays shall be required at Muzaffarpur 400/220kV S/s and 400/220kV substation needs to be established at Dhalkebar (Nepal).

Accordingly, it is proposed to construct 2 nos. 400kV line bays at Muzaffarpur substation of POWERGRID for operation of Muzaffarpur – Dhalkebar 400kV D/c line (presently operated at 132kV) at its rated voltage level of 400kV. These line bays are proposed to be constructed by POWERGRID as part of ISTS.

In 4th SSCM, CTU clarified that the proposed 400 kV bays at Muzaffarpur (PG) will be constructed by Powergrid on payment basis with funding by Nepal.

BSPTCL requested that on relinquishment of 220 kV bays after the commissioning of the Muzaffarpur – Dhalkebar 400kV D/c line, the same may be allotted to BSPTCL for drawing power from Muzaffarpur (PG) S/s.

Members agreed.

10.0: Re-conductoring of Rangpo – New Siliguri 400kV D/c (Twin Moose) line and new 220/132kV, 100MVA (4th) ICT at Rangpo

POWERGRID has informed that power from following generation project in Sikkim, is to be evacuated from Rangpo:

Sl. No.	Generation Project	Unit size (in MW)	Installed Capacity (in MW)	Pooling Point
Phase – 1				
1	Teesta Urja Ltd. / PTC (Teesta-III)	6x200	1200	Rangpo
2	Lanco Energy Pvt. Ltd. (Teesta-VI)	4x125	500	Rangpo
3	DANS Energy Pvt. Ltd. (Jorethang)	2x48	96	New Melli
4	JAL Power Corporation (Rangit-IV)	3x40	120	New Melli
5	Madhya Bharat Power Corporation Ltd. (Rongnichu)	2x48	96	Rangpo
6	Gati Infrastructure Ltd (Chuzachen)	2x49.5	99	Rangpo
7	Gati Infrastructure Bhasmey Power Pvt. Ltd. (Bhasmey)	2x25.5	51	Rangpo
		Sub-Total	2162	

Phase-2				
8	Shiga Energy Pvt. Ltd. (Tashiding)	2x48.5	97	Legship Pool
9	Sneha Kinetic Power Projects Ltd. (Dickchu)	2x 48	96	Dikchu Pool
10	Panan Himagiri Hydro Energy Ltd.	4x 75	300	Mangan
		Sub-Total	493	
Others				
11	Sikkim Hydro Power Ventures Ltd. (Rangit-II)	2x33	66	Legship Pool
Existing				
12	Teesta-V (NHPC)	3x170	510	Rangpo
		Total	3231	

Following transmission system is existing / under construction for power evacuation from above projects:

(a) Legship Pool – New Melli 220kV D/c

(b) New Melli – Rangpo 220kV D/c

(c) Dikchu Pool – Samardong – Rangpo 220kV D/c

(d) Rangpo – Siliguri 400kV D/c (Twin)
(Formed after LILO of Teesta-V – Siliguri 400kV D/c at Rangpo)

(e) Rangpo – Kishanganj 400kV D/c (Quad)
(Formed after LILO of Teest-III – Kishanganj 400kV (Quad) D/c at Rangpo)

Initially power from only two generation projects – Chuzachen and Bhasmey (total about 150MW) was planned to be pooled at Rangpo 132kV level and accordingly 3x100MVA was planned (considering N-1 security). Now, in view of modification in Sikkim Comprehensive scheme (of Govt. of Sikkim), power from Dikchu HEP will also be pooled at Rangpo at 132kV level.

In view of the above, about 250MW power from three generation projects viz. Chuzachen, Bhasmey and Dikchu would be injected at 132kV level at Rangpo S/s. In case of outage of one 220/132kV ICT at Rangpo during off-peak condition when drawl by Sikkim at Gangtok S/s is very less, the other two ICTs would get overloaded. Therefore, it is proposed to install new 220/132kV, 100MVA ICT at Rangpo.

In 4th SSCM, members agreed the following:

- *Reconductoring of Rangpo – Siliguri 400kV D/c Twin Moose line with Twin HTLS conductor along with suitable modification in line bay equipment at both ends*
- *Installation of 4th 220/132kV, 100MVA ICT at Rangpo S/s*

11.0: Replacement of 220/132kV, 1x50MVA ICT at Malda with 220/132kV, 200MVA ICT

POWERGRID has informed that at present, there are 220/132kV, 2x160MVA+1x50MVA ICTs at Malda S/s. During the last summer, a peak demand to the tune of 270MVA was observed against

an installed transformation capacity of 370MVA. It may be noted that 50MVA ICT is getting heavily loaded during summer and tripping of any 220/132kV ICT would lead to cascaded tripping. Further, it may be noted that the existing 50MVA ICT is more than 20 years old. In view of the above, it is proposed to replace the existing 50MVA, 200/132 kV ICT at with new 200MVA, 220/132 kV ICT at Malda S/s.

In 4th SSCM, WBSETCL informed that a new 220kV Gajol S/s is being commissioned nearby Malda which will offload Malda S/s. The award of Gazol S/s is expected by Dec, 2016.

As the proposed replacement of ICT will take 2-3 years and 220kV Malda S/s is getting critically loaded, WBSETCL requested the following:

- *WBSETCL will lend a 400/220 kV 160 MVA ICT to Powergrid for replacing the existing 220/132 kV 50 MVA ICT at 220kV Malda (PG) S/s.*
- *The cost of replacement as well as allied equipment as per requirement, will be bourne by WBSETCL for the arrangement.*
- *It will be a temporary arrangement till the commissioning of the proposed ICT.*

Members agreed to the following:

- *Replacement of the existing 50MVA, 200/132 kV ICT with new 160MVA, 220/132 kV ICT at Malda S/s.*
- *The temporary arrangement as requested by WBSETCL to meet the demand of Malda till the commissioning of new 160 MVA ICT.*

12.0: Installation of 420kV, 1x125MVAR bus reactor at Subhasgram S/s of POWERGRID

POWERGRID has informed that in the recent past, high voltage (upto 430kV) has been observed at Subhasgram sub-station of POWERGRID. This has at times led to over voltage tripping of lines. Presently, there is no bus reactor at Subhasgram S/s and there is only one 50MVAR line reactor at Subhasgram end of Sagardighi – Subhasgram 400kV S/c line. Accordingly, it is proposed to install 1x125MVAR bus reactor at Subhasgram S/s of POWERGRID for better voltage management.

In 4th SSCM, ERLDC informed that presently the voltage profile of Subhasgram S/s is improving and Bus reactor may be required in future to control the voltage.

WBSLDC expressed that at this juncture there is no requirement of Bus reactor at Subhasgram S/s. Moreover, study needs to be carried out for the exact capacity of Reactor.

13.0: Modification in "Transfer of power from generation projects in Sikkim to NR/WR scheme (HCPTC-3)" for Phase-1 IPPs in Sikkim

POWERGRID has informed that the LILO of both circuits of Teesta-III – Kishanganj 400kV D/c at Rangpo was agreed as a part of transmission system associated with Sikkim Phase-I generation projects and the LILO lines i.e. 400kV 2xD/C are under construction. One 400kV D/c LILO line is expected to be commissioned shortly; however, the 2nd 400kV D/c LILO line has got delayed due to forest clearance issues. About 8km stretch of the 2nd LILO line involves Tandong Reserve forest. The matter was discussed in the 17th meeting of Standing Committee on Power System Planning in Eastern Region held on 25-05-2015 wherein POWERGRID informed that the 2nd 400 kV D/c LILO section is likely be completed by March, 2017.

POWERGRID site officials have indicated that obtaining forest clearance for 2nd 400kV D/c

LILO may take substantial time and it may not be feasible to construct the same in near future.

In 4th SSCM, members expressed that the 2nd LILO is also very much required for evacuation of Teesta-III (6x200 MW) power. Therefore, Powergrid was advised to explore for alternate ROW, if forest cleranece issue were not resolved for completion of 2nd LILO to complete the scheme.

14.0: Consideration of 400kV lines/line segments owned and maintained by DVC as ISTS lines

DVC vide letter dated 26.05.2016 informed that the following 400kV lines/line segments carrying inter-state power are owned and maintained by DVC:

1. RTPS-Ranchi(PG) line
2. DSTPS-RTPS line
3. LILO part (10.5 km) upto RTPS of Ranchi (PG)-Maithon (PG)
4. Termination segment (3.5 km) at DSTPS of the Jamshedpur(PG) line

The lines under sl no. 1 shall be carrying inter-state power being directly connected with CTU, where id the lines under sl no. 3 & 4 are already a part of ISTS lines transmitting inter-state power being owned and maintained by CTU.

In case of lines under sl no. 2, the power flow through the RTPS-Ranchi(PG) line will be entirely of inter-state nature (natural power flow is from Ranchi(PG) to RTPS) in absence of any generation at RTPS and DSTPS, and even if DSTPS generation is considered, no power evacuation occurs through RTPS-Ranchi(PG).

In view of above, DVC requested for declaration of above 400kV lines/line-segments as ISTS lines.

In 4th SSCM, Committee advised DVC to apply to ERLDC/ERPC for identification of non-ISTS lines carrying ISTS power for further course of action.

Regarding maintenance of LILO portions as given below, members felt that the these sections should be maintained by Powergrid in line with the decision of 17th SCM for maintenance of LILO of Farakka-Subhasgram at Sagardighi TPS under item no. 27.

1) LILO of Ranchi (PG)-Maithon (PG) at RTPS (10.5 km)
2) Termination segment of the Jamshedpur(PG)-Maithon (PG) line at DSTPS (3.5 km)

15.0: Establishment of 400/220/132kV Grid Sub-stations at potential load centres in Bihar – Agenda from BSPTCL

Chief Engineer (Transmission) BSPTCL vide letter dated 19-4-2016 has informed that CEA vide letter no. 69/1/2012-SP&PA-1203-05 dated 15-11- 2012 has agreed Transmission System requirement of Bihar for the 12th plan in three parts. Due to better convenience, the entire works covered under Part- 2 (Phase-2) has been divided into two groups by Bihar Grid Company Ltd. (BGCL - a joint venture of BSP(H)CL and POWERGRID) under new head Phase-IV Part-I and Phase-IV Part-II. It is mentioned in the letter that the works covered under Phase-IV Part-I are under execution by BGCL. BSPTCL has forwarded the list of works covered under Phase-IV Part-I to CEA through E-mail, which is given below:

A: **Substation**

Sl. No.	Details of S/S work
01	Construction of 2x160 MVA + 2x50 MVA 220/132/33 kV new GIS S/S at Chapra
02	Construction of 2x160 MVA + 3x50 MVA, 220/132/33 kV new GIS S/S at Gaya (Manpur)
03	Construction of 2x160 MVA + 2x50 MVA, 220/132/33 kV new GIS S/S at Nawada
04	Construction of 2x160 MVA + 2x50 MVA, 220/132/33 kV new GIS S/S at Sheikhpura
05	Construction of 2x160 MVA + 2x50 MVA, 220/132/33 kV new GIS S/S at Hathidah
06	Construction of 2x160 MVA + 2x50 MVA, 220/132/33 kV new GIS S/S at Jamalpur
07	Construction of 2x160 MVA + 2x50 MVA, 220/132/33 kV new GIS S/S at Sabour

B: **LINES**

Sl. No.	**Details of transmission work**	**Line Length**
01	Chapra 220/132 kV new S/S – Chapra 132/33 kV S/S, 132 kV D/C line (Zebra conductor)	24
02	Hazipur 220/132 kV new S/S – Chapra 220/132 kV S/S, 220 kV D/C line	47
03	Chapra 220/132 kV S/S – Siwan, 132 kV D/C line	66
04	LILO of one circuit of 132 kV D/C Khagual-Digha line at Bihta	27
05	Patna (POWERGRID)-Khagaul, 220 kV D/C line	26
06	LILO of 220 kV D/C Biharsharif – Bodhgaya line at Gaya (new) (Manpur) S/S	14
07	LILO of 132 kV D/C Bodhgaya-Chandauti (ckt 3 & 4) at Gaya new (Manpur) S/S	Deleted
07.a	132KV D/C Gaya(new) – Jehanabad line	35
08	LILO of 132 kV S/C Bodhgaya-Wazirganj line at Gaya new (Manpur) S/ S	29
09	132 kV S/C (on D/C Tower) Gaya new (Manpur)-Hulasganj line	10
10	220 kV D/C (High Capacity) Gaya (POWERGRID)-Gaya new (Manpur) line	56
11	220 kV D/C (High Capacity) Nawada new-Gaya new (Manpur) line	55
12	132 kV D/C Sheikhpura(New) – Sheikhpura (Old) transmission line (High Capacity)	24
13	220 kV D/C Sheikhpura (New) – Nawada (New) transmission line (High Capacity)	51
14	220 kV D/C (High Capacity) Jamalpur new-Sheikhpura (New) transmission line	125
15	132 kV S/C (on D/C tower) Sheikhpura new – Biharsharif transmission line	40
16	132 kV D/C Nawada (New) – Nawada 132/33 kV (High Capacity) S/S	17
17	LILO of 220 kV Begusarai-Biharsharif line at 220 kV Hathidah	30

18	132 KV D/C Hathidah (New) –Hathidah (Old) transmission line (Zebra Conductor)	8
19	LILO of 132 kV D/C (High Capacity) Sultanganj-Lakhisarai transmission line at Jamalpur	44
20	132 kV D/C Jamalpur (New) – Jamalpur (Old) transmission line (Zebra Conductor)	34
21	132 kV D/C Sabour (New) – Sabour (Old) transmission line (Zebra Conductor)	13
22	LILO of 132 kV D/C Kahalgaon-Sultanganj line at Sabour	18
23	220 kV D/C (High Capacity) Sabour (New) – Jamalpur (New) transmission line	60
	Total	852

The works covered under Phase-IV Part-II which, interalia, includes transmission system associated with establishment of 3 no. 2x500 MVA 400/220 kV sub-stations around Patna under state sector at Bihta, Fatuha and Gaighat along with downlinking 220 kV & 132 kV system has been revised due to non-availability of land at these locations. In this context, the joint studies carried out by BSPTCL and POWERGRID for the 12th plan has been revised considering new substations at Naubatpur, Bakhtiyarpur and Jakkanpur in place of Bihta, Gaighat and Fatuha respectively. The revised system proposed by BSPTCL associated with above sub-stations along with power flows and other transmission works under Phase-IV part-II are given below:

a) Naubatpur 400/220/132/33 kV GIS S/s

i) Establishment of 2x500MVA+2x160 MVA+2x80 MVA 400/220/132 kV S/S at Naubatpur
ii) LILO of circuits 3 & 4 of Patna (PG)-Balia 400 kV D/c (Quad) line at Naubatpur 400 kV 2x D/C line
iii) LILO of both circuits of Ara (PG) – Khagaul (BSPTCL) line at Naubatpur (New) 220 kV 2xD/C
iv) Naubatpur (New)-Bihta (BSPTCL) 220 kV D/C line
v) Naubatpur (New)-Bhusaula (New) 220 KV D/C Transmission line

b) Bakhtiyarpur 400/220/132 kV GIS S/s

i) Establishment of 2x500 MVA +2x160 MVA 400/220/132 kV GIS S/S at Bakhtiyarpur
ii) LILO of both circuits of Barh – Patna (PG) 400kV D/c (Quad) line-1 at Bakhtiyarpur 400 kV 2xD/C
iii) Bakhtiyarpur (New) - Sheikhpura (New) 220 kV D/C line.
iv) Bakhtiyarpur (New) - Hathidah (New) 220 kV D/C line.
v) Bakhtiyarpur (New) - Fatuha (BSPTCL) 220 kV D/C line.
vi) Bakhtiyarpur (New) - Harnaut (BSPTCL) 132 kV D/C line
vii) Bakhtiyarpur (New) - Baripahari (BSPTCL) 132 kV D/C line. viii)132 kV D/C Bakhtiyarpur (New) - Baripahari (BSPTCL) line.

c) Jakkanpur 400/220/132/33 kV GIS S/s

i) Establishment of 2x500 MVA +3x160 MVA+3x80 MVA 400/220/132/33 kV GIS S/S at Jakkanpur
ii) LILO of both circuits of Nabinagar-II – Patna (PG) 400kV D/c at Jakkanpur 400 kV 2xD/C
iii) LILO of both circuits of Sipara (BSPTCL)-Bihta (BSPTCL) line at Jakkanpur (new)

2x220 kV D/C

iv) LILO of Khagaul (BSPTCL) - Sipara (BSPTCL) 220 kV S/C line at Jakkanpur (New) 220 kV D/C

v) LILO of both circuits of Jakkanpur-Sipara line at Jakkanpur New (being re-conductored with HTLS by BSPTCL) 2x132 kV D/C

vi) LILO of 132 KV S/C Jakkanpur/Mithapur-Fatuha line at Jakkanpur New (being re-conductored with HTLS by BSPTCL) 132 kV D/C

d) Bhusaula 220/33 kV GIS sub-station

i) Establishment of 2x100 MVA 220/33 kV GIS S/S at Bhusaula

e) Dumraon 220/132/33 kV GIS sub-station

i) Establishment of 2x160 MVA+2x80 MVA 220/33 kV GIS S/S at Dumraon

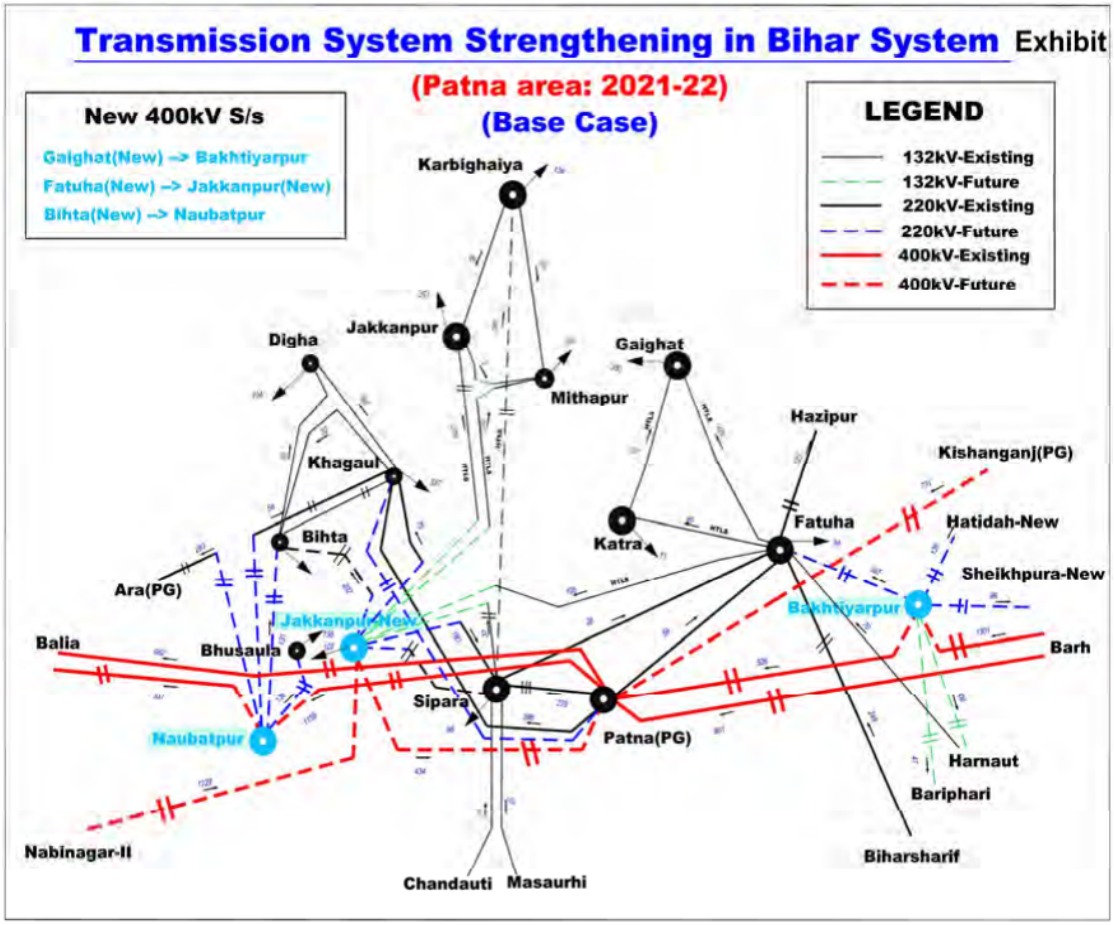
ii) LILO of both circuits of 220 kV Ara (PG)-Pusauli (PG) D/c line at Dumraon (New) 2x220 kV D/C

iii) Dumraon (New)- Dumraon (BSPTCL) 132 kV D/C

iv) Dumraon (New)- Buxarn (BSPTCL) 132 kV D/C

v) Dumraon (New)- Jagdishpur (BSPTCL) 132 kV D/C

f) LILO of one circuit of Purnea-Naugachia / Khagaria 132 kV D/C line at Katihar (BSPTCL) 132 kV D/C



Following are the observations of Base Case system studies of Bihar grid for 2021-22 time frame:
Observations:

Study results shows that a numbers of transmission lines and ICTs are overloaded in the following areas:

(i) West Champaran, East Champaran & Sitamarhi districts – Motihari & Sitamarhi areas
(ii) Gaya, Aurangabad, Rohtas & Bhabua districts – Gaya & Sasaram areas
(iii) Saharsa, Khagaria and Begusarai districts

Remedial measures:

(a) Establishment of three new 400kV substations have been proposed at Sitamarhi, Chandauti and Saharsa and three new 220kV substations have been proposed at Karmnasa, Motihari and Korha (near Katihar).
(b) The new three 400kV substations at Sitamarhi, Chandauti and Saharsa are proposed to be implemented as an ISTS scheme, whereas the three 220kV substations shall be implemented by BSPTCL.
(c) Snapshot of load flow study results (Base Case) of the Sitamarhi, Chandauti and Saharsa areas are shown.

The scope of works is proposed with three new ISTS substations in Bihar to meet 13th Plan end demand of the state along with down linking system is given below:

A. To be implemented through TBCB:

(1) Sitamarhi (New) S/s

i) 400/220/132kV, 2x500MVA + 2x200MVA new S/s at Sitamarhi
ii) Darbhanga – Sitamarhi (New) 400kV D/c (Triple Snowbird) line
iii) Sitamarhi (New) – Motihari 400kV D/c (Triple Snowbird) line
iv) 2x125MVAr, 420kV bus reactors along with bays
v) 400kV Line bays: 4 nos. for above lines
vi) 220kV Line bays: 4 nos. for Sitamarhi (New) – Motipur 220kV D/c and Sitamarhi (New) – Motihari (New) 220kV D/c lines (lines to be constructed by BSPTCL)
vii) 132kV Line bays: 4 nos. for Sitamarhi (New) – Sitamarhi 132kV D/c (Single Moose) and Sitamarhi (New) – Pupri 132kV D/c lines (lines to be constructed by BSPTCL)
viii) Space for
- 400/220kV, 2x500MVA ICT along with associated bays
- 220/132kV, 2x200MVA ICTs along with associated bays
- 400kV line bays (including space for line reactor): 6 nos.
- 220kV line bays: 4 nos.
- 132kV line bays: 4 nos.

(2) Chandauti (New) S/s

i) 400/220/132kV, 3x500MVA + 3x200MVA new S/s at Chandauti
ii) LILO of both circuits of Nabinagar-II – Gaya 400kV D/c (Quad) line of POWERGRID at Chandauti (New)
iii) 2x125MVAr, 420kV bus reactors along with bays
iv) 400kV Line bays: 4 nos. for above LILO lines
v) 220kV Line bays: 4 nos. for LILO of Gaya (POWERGRID) – Sonenagar 220kV D/c at both Bodhgaya (BSPTCL) and Chandauti (New) substations, so as to form Gaya (POWERGRID) – Bodhgaya (BSPTCL) – Chandauti (New) – Sonenagar 220kV D/c line (LILO to be done by BSPTCL)
vi) 132kV Line Bays: 4 nos. for LILO of Chandauti – Rafiganj and Chandauti – Sonenagar 132kV S/c lines (LILO to be done by BSPTCL)
vii) Space for

- 400/220kV, 2x500MVA ICT along with associated bays
- 220/132kV, 2x200MVA ICTs along with associated bays
- 400kV line bays (including space for line reactor): 6 nos.
- 220kV line bays: 4 nos.
- 132kV line bays: 4 nos.

Note: Under the scope of BSPTCL

(i) Reconductoring of Chandauti – Rafiganj – Sonenagar 132kV S/c line with HTLS conductor of 240MVA (ampacity - 1050A)
(ii) LILO of Chandauti – Rafiganj 132kV S/c line at Chandauti (New)
(iii) Reconductoring of Chandauti – Sonenagar 132kV S/c line with HTLS conductor of 240MVA (ampacity - 1050A)
(iv) LILO of Chandauti – Sonenagar 132kV S/c line at Chandauti (New)

(3) Saharsa (New) S/s

i) 400/220/132kV, 2x500MVA + 2x200MVA new S/s at Saharsa
ii) LILO of Kishanganj – Patna 400kV D/c (Quad) line of POWERGRID at Saharsa (New)
iii) 2x125MVAr, 420kV bus reactors along with bays
iv) 400kV Line bays: 4 nos. for above LILO lines
v) 220kV line bays: 4 nos. for Saharsa (New) – Begusarai 220kV D/c and Saharsa (New) – Khagaria (New) 220kV D/c lines (lines to be constructed by BSPTCL)
vi) 132kV line bays: 2 nos. for Saharsa (New) – Saharsa 132kV D/c (Single Moose) line (lines to be constructed by BSPTCL)
vii) Space for
- 400/220kV, 2x500MVA ICT along with associated bays
- 220/132kV, 2x200MVA ICTs along with associated bays
- 400kV line bays (including space for line reactor): 6 nos.
- 220kV line bays: 4 nos.
- 132kV line bays: 6 nos.

(4) Installation of 400/132kV, 315MVA (3rd) ICT at Motihari substations of Essel Infra

B. To be implemented by POWERGRID:

(1) Installation of 400/132kV, 315MVA (3rd) ICT at Banka and Lakhisarai substations of POWERGRID

Bihar shall ensure completion of downstream network from the above proposed three ISTS substations in matching time-frame of the substations for better utilisation.

In 4th SSCM, members agreed to the above proposal.

16.0: Construction of Gaya (PG) – Sonenagar (new) 220 kV D/C line in Phase- 3 scheme of BRGF under 12th Plan by BSPTCL

BSPTCL has submitted that 220 kV GSS at Sonenagar and 220 kV D/C line between Gaya (PG) – Sonenagar GSS is being constructed under Backward Region Grant Fund (BRGF) Phase-III. This is a part of scheme covered in 12th Plan, duly concurred by CEA and sanctioned by Planning Commission. The funding is done through grant.

Construction of 02 nos. 220 kV line bays at Gaya (PG) is proposed to be implemented by

POWERGRID as ISTS work. The line and GSS work at Sonenagar are being done by BSPTCL. BSPTCL may indicate the commissioning schedule of the line, so as to implement the line bays in matching time-frame of the line

In 4th SSCM, BSPTCL informed that the two nos of 220 kV bays for Gaya (PG) – Sonenagar (new) 220 kV D/C line at Gaya (PG) were already awarded under deposit work and are in advanced stage of construction. Therefore it was informed that the proposal for construction of 02 nos. 220 kV line bays at Gaya (PG) by POWERGRID under ISTS work *would have been for other projects under BRGF scheme.*

BSPTCL was advised to check and confirm the same in the SCM meeting.

Director (Projects), BSPTCL expressed that for all the 400/220/132 kV ISTS Sub-stations there should be provision for additional four 400 kV bays (For future ICTs and lines) and eight 220 kV bays (for ICT bays and future lines) as they were facing problem in getting drawl point at Patna and Gaya (PG) S/s.

Further, it was also mentioned that the construction, operation and maintenance of future bays at ISTS sub-stations may be carried out by the owner of the Sub-station as the owner of the line faces much difficulty in maintaining those bays.

Director, CEA informed that the precedence is coming since long for maintenance of bays at the premises of other utilities. Different utilities have their different philosophy for maintenance of their bay equipments; however a uniform practice may be adopted by the utilities by arriving a consensus decision in the forum of ERPC or SCM.

17.0: Conversion of fixed line reactor at Purnea end of Kishanganj – Purnea 400kV D/c line to switchable line reactor

POWERGRID has informed that Siliguri – Purnea 400kV D/c (Quad) line is being LILO at Kishanganj S/s and the same is expected to be commissioned shortly. Presently, one circuit of Siliguri – Purnea 400kV D/c line has 63MVAr fixed line reactor at Purnea end. After LILO of the subject line at Kishanganj S/s, length of Kishanganj – Purnea section would be about 72km.

In view of the above, it is observed that the one circuit of Purnea – Kishanganj 400kV D/c (after LILO) is becoming over compensated (about 108%). Accordingly, it is proposed that the 63MVAr fixed line reactor at Purnea end in one circuit of Kishanganj – Purnea 400kV D/c (Quad) line may be converted to switchable line reactor.

In 4th SSCM, members agreed to the proposal.

18.0: Transmission system for evacuation of power from Nabinagar-II STPP (1980MW) of NTPC

POWERGRID has informed that the transmission system for evacuation of power from Nabinagar-II STPP of NTPC is being implemented by POWERGRID with following scope of works:

(a) Nabinagar-II – Gaya 400kV D/c line with Quad moose conductor
(b) Nabinagar-II – Patna 400kV D/c line with Quad moose conductor
(c) Additional 1x1500MVA, 765/400kV ICT at Gaya

POWERGRID has informed that there are corridor constraints near Nabinagar-II generation project due to thick population in the area. Accordingly, about 7km Multi-Circuit section has been considered at Nabinagar-II end for both the evacuating lines.

In view of the above, members may approve construction of 7km Multi-Circuit section for both lines viz. Nabinagar-II – Gaya 400kV D/c (Quad) and Nabinagar-II – Patna 400kV D/c (Quad) at Nabinagar-II end..

In 4th SSCM, members agreed to the proposal.

19.0: Interim connectivity to generation projects through LILO arrangement

A number of generation projects in were granted Connectivity / Long Term Access (LTA) with strengthening of transmission system. In few cases generation projects were to be commissioned ahead of the anticipated commissioning of the associated transmission system. In such cases, generation projects were given temporary connectivity through loop-in & loop- out (LILO) of nearby transmission lines so as to enable them connect with the grid and commission their generation projects. The temporary connectivity through LILO was to be withdrawn after commissioning of the associated transmission system. Associated transmission system of some of such generation projects have been commissioned and their temporary connectivity through LILO has been disconnected; however, some are still connected through LILO arrangement.

In this regard, it may be mentioned that there are number of generation projects in Eastern region connected / to be connected through temporary LILO arrangements. List of such generation projects along with anticipated time line as informed by project developers in various meetings is mentioned below:

Generation Project in ER connected through temporary LILO arrangement					
Sl. No.	**Generation Project**	**Installed Capacity (in MW)**	**Present Connectivity through LILO**	**Final Connectivity Arrangement (not**	**Anticipated Completion Schedule**
1	Sterlite Energy Ltd.	4x600	LILO of one circuit of Rourkela-Raigarh 400kV D/c line (granted in Sept'09)	Sterlite - Jharsuguda 400kV 2xD/c	July'16
2	Ind Barath Energy (Utkal) Ltd.	2x350	LILO of one circuit of Jharsuguda - Raigarh 400kV D/c line (granted in Sept'09)	Ind Barath - Jharsuguda 400kV D/c	Apr'16
3	Gati Infrastructure Ltd. (Chuzachen)	2X49.5	LILO of Rangpo - Melli 132kV S/c line (granted in Nov'07)	Chuzachen - Rangpo 132kV D/c (with Zebra conductor)	EP&D Sikkim may update status of bay
4	DANS Energy Pvt. Ltd. (Jorethang)	2x49	LILO of one circuit of Rangpo- New Melli 220kV D/c line (granted in May'15)	Jorethang - New Melli 220kV D/c	Mar'16

5	Sneha Kinetic Power Projects Pvt. Ltd. (Dikchu)	2x48	(*) LILO of one circuit of Teesta- III – Rangpo 400kV D/c line (granted in Dec'14 by CERC)	Dikchu – Dikchu Pool 132kV D/c	

In line with the direction from CERC, the above matter needs to be discussed in Standing Committee meetings and timeline for replacement of LILOs of generation developer by dedicated transmission lines along with further course of action in case of default in meeting the deadlines is to be finalised.

In 4th SSCM, the committee discussed in detail and decided the following timeline for withdrawing the LILO:

Generation Project in ER connected through temporary LILO arrangement						
Sl. No.	**Generation Project**	**Installed Capacit**	**Present Connectivity through LILO**	**Final Connectivity Arrangement**	**Target date**	**Remrks**
1	Sterlite Energy Ltd.	4x600	LILO of one circuit of Rourkela-Raigarh 400kV D/c line (granted in Sept'09)	Sterlite - Jharsuguda 400kV 2xD/c	**April'16**	***The LILO may be removed as the target date fixed by 31st & 32nd TCC/ERPC was not adhered to.***
2	Ind Barath Energy (Utkal) Ltd.	2x350	LILO of one circuit of Jharsuguda - Raigarh 400kV D/c line (granted in Sept'09)	Ind Barath - Jharsuguda 400kV D/c	**June'16**	***The LILO may be removed if the target was not adhered.***
3	Gati Infrastructure Ltd. (Chuzachen)	2X49.5	LILO of Rangpo - Melli 132kV S/c line (granted in Nov'07)	Chuzachen - Rangpo 132kV D/c (with Zebra conductor)	**EP&D Sikkim may update**	***The construction of bays at Rangpo is under the scope of Sikkim.***
4	DANS Energy Pvt. Ltd. (Jorethang)	2x49	LILO of one circuit of Rangpo- New Melli 220kV D/c line (granted in May'15)	Jorethang - New Melli 220kV D/c	**July'16**	***Expected to be completed within target date.***
5	Sneha Kinetic Power Projects Pvt. Ltd. (Dikchu)	2x48	(*) LILO of one circuit of Teesta- III – Rangpo 400kV D/c line (granted in Dec'14 by CERC)	Dikchu – Dikchu Pool 132kV D/c		***Expected to be completed in matching with generation.***

20.0: Tashiding HE Project, Sikkim: Evacuation of Power (Interim Arrangement) – Proposal of Shiga Energy Private Ltd.

Tashiding HEP in Sikkim is in advanced stage of construction and expected to be commissioned by December 2016. The power evacuation system for the project comprises of the following:

(i) Immediate Evacuation System (under scope of Gen. Developer)

- Tashiding - Legship 220kV D/c line (7km)

(ii) Common Transmission System (under scope of Govt. of Sikkim)

- Establishment of 220kV substation at Legship

- Legship - New Melli 220kV D/c with twin moose conductor

The Legship Pooling station and 220 kV D/C transmission line from Legship Pooling station to New Melli substation, with 2 number GIS bays at New Melli are being implemented by Department of Power, Govt. of Sikkim as a part of Comprehensive Scheme for strengthening of Transmission and Distribution system in Sikkim (being implemented by POWERGRID on consultancy basis).

In the meeting held in CEA with representatives from NLDC, CTU-PGCIL & Shiga Energy on 23.11.2015, it was agreed that in case of delay in Legship Pooling station, the transmission line from Tashiding HEP to Legship Pooling station and transmission line from Legship pooling station to New Melli substation may be directly connected bypassing the Legship Pooling station as an interim arrangement to ensure power evacuation.

In the above said meeting it was also agreed that POWERGRID would expedite the commissioning of 220 kV D/c line from Legship Pooling station to New Melli substation and associated GIS bays to match with the commissioning schedule of THEP (i.e. Dec., 2016). Therefore Shiga Energy has requested for taking the work related to 220 kV D/c transmission line from Legship pooling station to New Melli substation and associated 2 nos. GIS line bays at New Melli on top priority so that the power could be evacuated without any hold up.

In view of the above, members may approve interim connection of Tashiding HEP – Legship Pool and Legship Pool – New Melli 220kV D/c lines by bypassing Legship Pool substation till completion of Legship Pool S/s.

In 4th SSCM, members agreed to the proposal.

21.0: Additional 400 kV D/C line from Derang (Generation project of JITPL) to Angul Pooling Station(PG) – Proposal of JITPL

JITPL has established a 2x600 MW generating plant at Derang, Odisha. Both the units have been declared under commercial operation and power is being evacuated through Derang-Angul (PG) 400 kV D/C line. M/s JITPL had applied for 1044 MW LTOA after considering drawl of 156 MW by Odisha (GRIDCO) from bus bar of the generating switchyard as per PPA signed with Odisha. Accordingly, M/s JITPL was granted Long Term Open Access (LTOA) of 1044 MW under CERC Regulation. However, POSOCO has granted NOC for 980 MW citing congestion in the transmission system. Therefore, an NOC of 980MW combined with the connectivity of 1044 MW instead of 1200 MW is resulting into under generation of about 220 MW by JITPL.

Further, Derang - Angul Pool 400 kV D/C line was to be designed for maximum conductor temperature of 95ºC as per the minutes of the meeting held on 8- 12-2008 and 15-12-2008 at POWERGRID office, Gurgaon regarding grant of LTOA for generation projects in advance stage in Odisha. However, the above dedicated line (Twin Moose with ACSR conductor) has been designed with maximum conductor temperature of 75ºC. Hence, in the event of N-1 contingency, the above dedicated line is not able to evacuate full power from the project

In this regard, a meeting was held in the CEA on 16.12.2015 with CEA, CTU, POSOCO & JITPL and JITPL was advised to construct an additional Derang - Angul 400 kV D/C line to meet the N-1 contingency criteria and to cater to the additional units planned at Derang as expansion in future.

In 4th SSCM, the members agreed to the proposal.

22.0: Installation of 400/220kV, 500MVA ICT (3rd) at Maithon

POWERGRID has informed that presently, there are 2 nos. 315MVA, 400/220kV ICTs at Maithon S/s of POWERGRID. The split bus arrangement has been made at Maithon sub-station at 400kV level and both the ICTs are located on one side of the bus sectionalizer. In view of growing ICT loading, transformation capacity augmentation by replacement of 2x315MVA ICTs with 2x500MVA ICTs along with addition of 1x125MVAr bus reactor was approved in the 14th SCM held in January-2013. The loading of Maithon ICTs has grown to more than 600MVA. Thus, even after replacement of ICTs, the N-1 criteria shall not be met during peak load condition.

Accordingly, members may discuss the installation of one more 400/220kV, 500MVA ICT (3rd) at Maithon S/s. Thus, the total transformation capacity at Maithon S/s shall be 3x500MVA.

In 4th SSCM, members agreed to the proposal.

23.0: Provision of 765kV, 80MVAr single phase spare reactor at Ranchi (New) substation of POWERGRID

POWERGRID has informed that the switchyard layout of 765/400kV Ranchi (New) S/s is Breaker and a half scheme. There are two bus reactors and one line reactor (in Ranchi-New – Dharamjaygarh 765kV S/c, ckt-1) of 765kV, 240MVAr capacity on one side (side-1) of the substation (total 10x80 MVAr single phase units including one 765kV, 80MVAr single phase spare reactor). There are 3 nos. of 240MVAr line reactors (1 no. with Ranchi New – Dharamjaygarh 765kV S/c, ckt-2 & 2 nos. with Ranchi New – Medinipur 765kV D/c line under ERSS-XVIII) on the other side (side-2). However, this side (side-
2) is not having any spare reactor unit.

The 765kV, 1-ph spare reactor is installed as ready standby along with 765kV auxiliary bus and 145kV neutral bus arrangement on side-1 such that in case of failure of any single phase reactor on that side the spare reactor can be taken into service in short span of time (without any physical movement of spare reactor). However, in case of failure of any single phase reactor on the side-2, there is no single phase spare reactor available for replacement.

In view of the above, members may discuss installation of 765kV, 1x80MVAr single phase spare reactor at Ranchi (New) substation of POWERGRID on the side-2 also

In 4th SSCM, members agreed.

24.0: Construction of 01 no. 220 kV line bay at Darbhanga (400/220 kV) GSS under DMTCL (Darbhanga – Motihari Transmission Company Ltd.)

BSPTCL vide letter no. 2027/BSPTCL dated 06.04.2016 has requested for construction of 01 no. 220 kV line bay at Darbhanga (400/220 kV) GSS for termination of 2nd circuit of 220 kV Darbhanga (400/220 kV)-Samastipur (new) (220/132/33 kV) transmission line.

CEA vide letter no. 69/1/2012-SP&PA/1203-05 dated 15.11.2012 has cleared following transmission system of Bihar as a part of 12th plan transmission & sub- transmission system strengthening in Bihar-Phase-1 for delivery of power from Dharbanga 400/220 kV sub-sttaion:

i. 220kV D/C Darbganga (400/220 kV) –Bikhanpura new transmission line
ii. 220kV D/C Darbganga (400/220 kV) – Darbganga (220 kV BSPTCL) transmission line

iii. 220kV D/C Darbganga (400/220 kV) – Supoul (Laukahi) (220/132 kV) transmission line

iv. 220kV DCSS Darbganga (400/220 kV) – Samastipur (new) (220/132/33 kV) transmission line

BSPTCL has informed that 2nd circuit stringing of 220kV Darbhanga (400/220 kV) – Samastipur (new) (220/132/33 kV) DCSS transmission line is required to be done at this stage due to the following reasons-

a) To have extra source at 220 kV level from Darbhanga (400/220 kV).

b) To cater rising demand of electricity in future as demand is increasing exponentially due to implementation of different scheme of DISCOMS and PFA (24x7) scheme of GOI.

c) To avoid ROW, if this worked is delayed and taken up at later stage. ROW is increasing day by day. Presently sever ROW is being faced in construction of transmission lines.

Darbhanga 400/220 kV GSS is under construction by M/s DMTCL under TBCB route.
As per the scope of work given to M/s DMTCL, there is provision of 7 Nos. 220 kV line bays and space for 6 Nos. 220 kV future line bays.

The seven (7) no. of 220 kV line bays at Darbhanga are being utilized by BSPTCL for termination of the double circuit line to Motipur, Darbganga (BSPTCL) and Supoul (Laukahi), and 220 kV DCSS line to Samastipur (new). Beyond these 7 bays, M/s DMTCL is to provide only space for six (6) bays.

CEA has given no objection for construction of 01 no. 220 kV line bay at Darbhanga (400/220 kV) GSS for termination of 2nd circuit of 220 kV Darbhanga (400/220 kV)- Samastipur (new) (220/132/33 kV) transmission line. The cost of line bay will be borne by BSPTCL.

In 4th SSCM, members noted.

25.0: Connectivity of CESC system with Central Transmission Utility -CESC

CESC vide its letters dated 2/12/15 & 11/9/15 informed that considering the present peak demand & growth rate, it would require about 300MW power in the next 3 to 4 years and another 200 MW power in next 2 to 3 years.

In order to meet the future demand, CESC informed that it has placed the following proposal to CEA:

- Construction of 400/220kV substation at Rajarhat very close to PGCIL sub-station with 2x500MVA transformers
- For a connectivity to the 400/220kV Rajarhat (PGCIL) S/s for 500MW power
- 220kV underground D/C cable connection to the load centre (East Calcutta substation)

It was also informed that WBSETCL was already requested to give “No objection” for the above connectivity.

In 2nd SSCM, CTU informed that the proposal will be placed in next LTOA meeting.

The committee advised WBSETCL to consider the CESC proposal and give their official communication in this regard.

In 3rd SSCM, WESETCL informed that bilateral discussions were going on and it will be resolved at the earliest.

In 4th SSCM, WESETCL informed that in the joint meeting with CESC for their future requirement, CESC has not given any requirement of CTU connectivity.

Members felt that since CESC is a distribution licensee under WBSETCL control area therefore if WBSETCL feels CESC may be allowed to present their case in forthcoming SCM meeting.

26.0: Talcher Stage-III (2x660MW): Application for Connectivity of 1320MW and Long Term Access (LTA) of 622.05MW

Connectivity & LTA application of NTPC for Talcher-III generation project was discussed in the 10th Connectivity and LTA meeting held on 25th May 2015, wherein following system was proposed for LTA:

- Talcher-III – Angul 400kV D/c line (HTLS equivalent to Quad Moose)

In the meeting, Odisha proposed construction of Talcher-III – Meramundli-B 400kV D/c line for drawl of its share. In view of Odisha's proposal, issue of paralleling of ISTS & STU (Odisha) network at Talcher-III generation switchyard was discussed and it was decided to resolve the matter in a separate meeting.

In view of the same, CEA convened a meeting on 04th Nov 2015 to resolve the issue of drawl of power by Odisha. In the meeting it was decided that, GRIDCO would apply for LTA of 622MW (Odisha's share) from Talcher-III project and OPTCL would submit details regarding drawl of Odisha's share. The same is still awaited. Further, in the meeting, it was decided that the evacuation system would be finalised in the Standing Committee Meeting on Power System Planning of Eastern Region.

For evacuation and transfer of power from Tacher-III to beneficiaries, it is proposed to connect the generation project to Angul S/s of POWERGRID through high capacity 400kV D/c line. Accordingly, it is proposed to grant LTA of 622.05MW to NTPC for Talcher-III generation project with following connectivity transmission line:

(i) Talcher-III – Angul 400kV D/c (Triple Snowbird)

In 4th SSCM, OPTCL informed that they are capable of drawing their 50% of Talcher-III with their own system and shown their unwillingness to the above proposal.

Member Secretary, ERPC recalled the views of NTPC as recorded in 32nd TCC and expressed that the this issue needs to be deliberated in the presence of NTPC, Powergrid, OPTCL and other beneficiaries of Talcher-III.

It was decided that the issue will be further deliberated in SCM meeting scheduled to be held on 13.06.2016.in presence of member from NTPC.

27.0: Construction of new 400 kV Sub-stations & lines by OPTCL

A. Construction of 400/220kV S/s at Meramundali "B":

In 3rd SSCM, OPTCL informed with a presentation that as 400kV Angul-Meramundali is major contributor of fault current at Meramundali, there is some modification in the connectivity of Meramundali-B is needed. The proposed connectivity will be as follows:

- Construction of 400kV D/C TTPS Stage-III to Meramundali-B line for power evacuation from TTPS expansion
- Shifting of Duburi to Meramundali 400kV D/C line from Meramundali to Meramundali-B.
- Shifting of GMR to Meramundali B (shifting of GMR Odisha state dedicated unit connected to existing Meramundali bus to Meramundali-B)
- Shifting of Duburi to Meramundali 220kV D/C line from Meramundali to Meramundali-B.

On query, OPTCL informed that the Meramundali-B is being designed with fault level of 63 kA.

B. Construction of 400/220kV S/s at Narendrapur with 400kV DC line from Pandiabil (PGCIL) to Narendrapur.

To cater to the normal load growth and also upcoming bulk loads in Narendrapur area the following was proposed in 2nd SSCM:

- 400kV D/C line from Pandiabil 400/220kV substation to Narendrapur
- New 220kV D/C line from Narendrapur 400/220kV substation to Aska 220/132kV
- LILO of both the circuits of existing 220kV D/C line from Therubali to Narendrapur at Narendrapur 400/220kV substation

In 3rd SSCM, OPTCL informed that Narendrapur S/s is also being constructed for completing the 400 kV ring of OPTCL system which, in future, will be connected to 400 kV Theruvali and Jayanagar S/s.

C. Construction of 400/220kV Khuntuni S/s with LILO of 400kV D/C line from Meramundali-B to Dhubri.

In 3rd SSCM, OPTCL informed that the 2x500 MVA, 400/220 kV Khuntuni S/s is proposed between Meramundali and Mendhasal to cater the growing demand in the area. It will be a part of 400 kV ring of OPTCL system. The connectivity details as explained in the meeting are as given below:

- LILO of 400kV D/C Meramundali-B to Dhubri line
- LILO of Meramundali-Mendhasal 400kV D/C line
- 220kV DC line from Khuntuni to Dhenkanal New and Bidanasi
- 1X660 MW IPP of LANCO Babandh

OPTCL presented the load flow study considering all the above proposals. They explained that for study the TTPS generation is stepped up to 400kV and connected to 400kV bus of proposed Meramundali-B substation through 400kV D/C line. It is a part of Transmission Plan for the year 2015-16 to 2018-19. It is required to evacuate state share of 50% power i.e from one unit (660 MW). System Study has been done with connection of 1X660 at Meramundali "B".

In 31st TCC, for all the above four proposals, CTU expressed that the latest developments in transmission and generation planning of Odisha system should be submitted for detailed study and also to arrive technically optimum scheme for evacuation of TTPS Stage III.

OPTCL informed that they already carried out the detailed study and the same along with the requisite information on transmission planning will be shared with CTU/CEA.

TCC advised CTU/CEA to carry out the detailed study and place before next SCM for further deliberation.

In 4th SSCM, OPTCL informed that the study results have already been forwarded to CEA/CTU.

On query. OPTCL clarified that these sub-stations are required to meet the growing demand of Odisha and has no link with the Talcher-III generation evacuation.

Members felt that Talcher-III evacuation system needs to be deliberated in detail in forth coming SCM meeting and these 400/220 kV Sub-stations will also be discussed in the 18th SCM for further decision.

ITEM NO. C13:	**Priority-based commissioning of bus reactor for control of high voltage during lean periods**

The status as updated in 32nd TCC is as given below:

S.N.	Reactor	Status
1	125 MVAR reactor of Jeypore	*Commissioned*
2	125 MVAR Bus reactor of Jamshedpur	Will be available by June 2016 and will be commissioned in another 3 months.
3	125 MVAR Bus reactor of Biharshariff	
4	Additional bus-reactor of 125 MVAR capacity at Beharampur on urgent basis.	Will be made available for commissioning by Dec, 2016.
5	50 MVAR at Behrampur on urgent basis by diverting from Rourkela which is kept as a spare	By June, 2016. After commissioning of 125 MVAR reactor the 50 MVAR will be removed and kept spare.

ERLDC informed that there is severe high voltage problem at 400kV Jamshedpur and requested Powergrid to expedite.

TCC advised Powergrid to explore the possibility of diverting the reactor from the other schemes.

Powergrid agreed.

ITEM NO. C14:	**Status of Transmission projects approved in various meetings**

The status as updated in 32nd TCC/ERPC meeting on transmission projects approved to various meetings is given below:

Sl No.	Scheme	ERPC/TCC Meeting	Latest status updated in 32nd TCC Meeting
1	Installation of 2x500 MVA, 400/220 kV ICTs instead of earlier approved 400/220 kV, 2x315 MVA + 1x500 MVA, ICTs at Kishanganj	28th ERPC Meeting	*At Kishenganj 1st ICT will be commissioned by March, 2016 and 2nd ICT by May, 2016.*
2	Construction of 132 kV D/C Deoghar – Banka line for reliable power supply to Railway TSS from 132 kV Deogarh (JSEB) S/S		To be discussed in empowered committee meeting conducted by CEA.
3	Modification of 132 kV Bus arrangement at 220/132 kV Birpara S/s of Powergrid from existing single main & transfer bus scheme to double main scheme.	28th ERPC Meeting	Powergrid informed that the NIT – Nov, 2015. Award March, 2016.

4	Change in proposed the Associated 765 kV System Strengthening Scheme in ER	28th ERPC Meeting	It was discussed and finalized in 17th SCM.
5	Conversion of 50 MVAR Line Reactor presently installed at Jeerat end of 400 kV Berhampur – Jeerat line to Bus Reactor in Parallel with existing Bus Reactor at Jeerat	26th ERPC Meeting	Powergrid informed that order has been placed and the work is expected to completed by March, 2016.
6	Retrofitting of pilot wire protection of 132 kV Purnea (PG) – Purnea (BSPHCL) feeders	26th ERPC Meeting	Powergrid informed that the scheme was covered in the scheme of modification of 132 kV Bus arrangement at 220/132 kV Purnea S/S of Powergrid under GIS package. The work has been awarded and expected to be completed by July, 2016.
7	Augmentation of existing 100MVA ICT with 160MVA at 220/132 kV Birpara and Siliguri S/S	25th ERPC Meeting	Birpara by March, 2016 & Siliguri by June, 2016. (Subject to the shutdown approval by WB.)
8	Transmission System for immediate evacuation of power from North Karanpura STPP (3x660 MW) to Chandwa and Gaya Pooling stations of Powergrid	25th ERPC Meeting	Powergrid informed that the scheme has been changed; fresh DPR is under preparation.
9	Addition of 1x125 MVAR Bus Reactor each at Baripada & Maithon 400 kV S/S	25th ERPC Meeting	Powergrid informed that the work has been awarded and expected to be completed by November, 2016.
10	Strengthening of Farakka – Malda corridor	25th ERPC Meeting	Powergrid informed that the work has been awarded and expected to be completed by November, 2016.
11	Procurement of two single phase spare ICT units (2x500 MW), 765/400 kV for Eastern Region - to be stationed at Angul & Jharsuguda S/S).	25th ERPC Meeting	Powergrid informed that work has been awarded on March, 2015 and expected to be completed by September, 2016.
12	Augmentation of Transformation Capacity at 400/220 kV Baripada S/S	25th ERPC Meeting	Powergrid informed that the work has been awarded and expected to be completed by November, 2016.
13	Augmentation of transformation capacity at the existing 400/220 kV Jamshedpur (PG) & Sasaram (PG) S/S	25th ERPC Meeting	*At Sasaram 1st ICT will be commissioned by March, 2016 and 2nd ICT by May, 2016 ,* *At Jamshedpur 315 MVA Transformer shall be shifted from Patna Substation after its Augmentation. Target for commissioning – June 16.*
14	Establishment of 220 kV MTPS (Extn.) – Muzaffarpur (PG) D/C line (3rd & 4th Circuits)	25th ERPC Meeting	Bay construction at Muzaffarpur to be done by Powergrid under consultancy projected. Expected to be completed by November, 2016.
15	Modification of 132 kV Bus arrangement at 220/132 kV Siliguri S/S (PG)	25th ERPC Meeting	Powergrid informed that the work has been awarded and expected to be complete by November, 2016.
16	Procurement of 110 MVAR, 765 kV Single Phase spare Reactor unit at Sasaram	25th ERPC Meeting	Powergrid informed that the work has been awarded on March, 2015 and expected to be delivered by March, 2016.
17	Establishment of Gazol 220/132 kV S/S in Malda by LILO of Malda-Dalkhola 220 kV D/C line of Powergrid	25th ERPC Meeting	WBSETCL assured that the scheme will be completed within 20 months from the date of LOA
18	Construction of down linking transmission	25th ERPC	Powergrid informed that four numbers

	network for drawal of power from Kishanganj 400/220 kV S/S of Powergrid	Meeting	of 220 kV bays at 440 kV Kishanganj (PG) for 2xD/C 220 kV Kishanganj (PG)-Kishanganj (BSPHCL) will be under regional scheme as informed by CEA. The work has been awarded on October, 2014 and expected to be completed by June, 2016.
19	Upgradation of the 3x100 MVA spare ICT at Purnea with 3x160 MVA ICT.	25th ERPC Meeting	*At Purnea two ICTs have been replaced. Replacement of third one is under progress. Target 20 March 16.*
20	Modification of 132 kV Bus arrangement at 220/132 kV Purnea S/S of Powergrid	25th ERPC Meeting	*Powergrid informed that the scheme will be implemented by July, 2016.*
21	Single phase spare converter transformer units of 1x234MVA for pole 1 and 1x201.2 MVA for pole 2 at 2x500 MW HVDC Back-to- Back station at Gazuwaka (one for each pole)	25th ERPC Meeting	Powergrid informed that preparation of DPR in in progress.
22	GIS bays for 400 kV, 125 MVAR Bus Reactor at Baripada	24th ERPC Meeting	Powergrid informed that the work has been awarded and expected to be complete by November, 2016.
23	Eastern Region Strengthening Scheme-XV: Construction of Farakka - Baharampur 400kV D/C (HTLS) line and subsequent modification of LILOs	17th SCM & 30th ERPC	
24	Installation of 3rd 400/220 kV, 1x315 MVA ICT at Durgapur & New Siliguri Substation	17th SCM & 30th ERPC	
25	Replacement of 400/220kV, 2x315 MVA ICTs at Malda , Jeypore and Rourkela Substation with 400/220 kV, 2x500 MVA ICTs	17th SCM & 30th ERPC	
26	Conversion of Fixed Line Reactor at Lakhisarai – Biharsharif 400 kV D/c & Keonjhar – Rengali 400 kV S/c into Switchable Line Reactor	17th SCM & 30th ERPC	*Expected in May 2016.(For Lakhisarai – Biharsharif 400 kV D/c)*
27	Commissioning of 2x160 MVA, 220/132 kV Auto transformer at Daltonganj substation along with 4 number of 132 kV line bays	17th SCM & 30th ERPC	*Under Engineering Stage.*
28	Extension of under construction 400kV D/C Latehar-Essar lines up to 400kV Chandwa Pooling station(PG), under the scope of JUSNL	17th SCM & 30th ERPC	
29	Establishment of 2x500 MVA 400/220 kV sub-station at Dhanbad by LILO of both circuits of Ranchi-Maithon RB 400 kV D/C line at Dhanbad	17th SCM & 30th ERPC	
30	Construction of 6 no. 400 kV line bays and bus splitting (765 kV & 400kV) arrangement at Jharsuguda (Sundargarh) as GIS	17th SCM & 30th ERPC	
31	Reconductoring of Maithon RB-Maithon	17th SCM &	

	400 kV D/C line with HTLS conductor	30th ERPC	
32	Installation of 3rd 400/220 kV 500 MVA transformer at Muzaffarpur	17th SCM & 30th ERPC	*Charged on Dated 30.12.15.*
33	Construction of North Karanpura – Gaya 400 kV D/c & North Karanpura – Chandwa (Jharkhand) Pooling Station 400 kV D/c	17th SCM & 30th ERPC	*Under DPR stage.*

ITEM NO. C15:	**Status of Spare Transformers & Reactors approved in various meetings**

The status updated as in 32nd TCC/ERPC meeting on Spare transformers & reactors to be commissioned by Powergrid for use in ER.

Sl No.	**Spare transformer/reactor**	**Latest status updated in 32nd TCC Meeting**
1	1 X 315 MVA, 400/220 KV AUTO TRANSFORMER Biharshariff	Used at Biharshariff in place of failed ICT. Procurement of new spare is under progress. NIT- Dec, 2015.
2	1 X 315 MVA, 400/220 KV AUTO TRANSFORMER Durgapur	Utilized at 400 kV Farakka. Procurement of spare ICT is under process. NIT – Dec, 2015.
3	1 X 80 MVAR SHUNT REACTOR AS O&M SPARE Rourkela Substation	Available at site.
4	2 X 500 MVA, 765/400 KV single phase ICTs at Angul & Jharsuguda.	Powergrid informed that the work has been awarded on March, 2015 and expected to be delivered by September, 2016.
5	1 X 110MVAr, 765KV single phase bus reactor at Sasaram	*The work has been awarded on March, 2015 and expected to be delivered by May, 2016.*
FOR MEMBER STATES:		
1	2 X 315 MVA 400/220 kv ICTs	Available at Jamshedpur & Rourkela
2	2 X 160/150 MVA 220/132 kv ICTs	One ICT utilised at Purnea S/s, 2nd ICT available at Siliguri S/s.
3	1 X 50 MVA 132/66 kv ICT	Available at Gangtok
SURPLUS FROM OLD AS SPARE		
1	3x 50 MVA, 220/132kV (to be released from Malda (2nos.) & Birpara (1no.) S/Ss	Replaced with 160MVA transformer.
2	2x100 MVA, 220/132kV (to be released from one at Birpara & one at Siliguri)	Yet to be taken out
3	2x100 MVA, 220/132kV (to be released from Purnea (2nos.) S/Stn.)	Yet to be taken out

ITEM NO. C16:	**Commissioning of new elements in next 6 months-- PGCIL**

Following elements are expected to be commissioned in the forthcoming months:

Sl	**Name of element**	**Ant. commissioning**	**Latest status updated in 32nd TCC Meeting**

1	LILO of Bishwanath Chariali - Agra HVDC line at New Pooling Station in Alipurduar	Jun'16	Work under progress. Commissioning matching with associated HVDC terminal.
2	LILO of 400KV D/C Bongaigaon - Siliguri line (Pvt. Sector line) at New Pooling Station in Alipurduar	Jun'16	Completion matching with Alipurduar PS.
3	LILO of 220KV D/C Birpara - Salakati line at New Pooling Station in Alipurduar	Jun'16	Completion matching with Alipurduar PS.
4	LILO of Siliguri (Existing) - Purnea 400KV D/C line (Q) at New Pooling station at Kishanganj	Feb'16	Completion matching with Kishenganj S/s.
5	LILO of Siliguri - Dalkhola 220KV D/C line at New Pooling station Kishanganj	Feb'16	Completion matching with Kishenganj S/s.
6	LILO of 400KV D/C Baripada - Mendhasal at Pandiabil (In place of 400KV D/C Mendhasal-Uttra line)	Mar'16	Completion matching with Pandiabil sub station.
7	400KV D/C Kishanganj - Patna line (Quad)	Feb'16	*Completion matching with Kishanganj S/S by March 16.*
8	LILO of Teesta-III - Kishanganj 400kV D/C (Q) at Rangpo(being constructed under JV route)	Mar'16 (Loop-in)	Work was held-up due to severe ROW problem issue. Now resolved. Completion of 01 no. LILO deferred to Mar'17.
9	400KV D/C Ranchi - Jharkhand Pooling Stn. line (Quad)	Mar'16	Testing under progress. Completion matching with Jharkhand Pool & Jharkhand Pool bay at line.
10	400KV D/C Jharkhand Pool - Gaya line (Quad)	Mar'16	Permission to work received in May'15. Repeated stoppage of work by extremists affecting progress.
11	400KV D/C trans. Line for swapping of Purneabaya (1&2) with Sasaram bays (#3&4) at Biharshariff S/Stn.	Mar'16	*ROW problem being encountered. Expected to be delayed.* *Expected to be commissioned in March 2016.*
12	400KV D/C trans. Line for reconfiguration of BiharshariffCkt III&IV from its present position to St.-II side of Kahalgaon Sw. yd. of NTPC	Mar'16	*Line Shall be completed by May 16.* *Bay at NTPC yet to be awarded.*
13	400KV D/C Rajarhat - Purnea line (Tripal)(with LILO of one ckt at Gokarana (WBSETCL) & other ckt at Farraka (NTPC).	Jun'16	
14	LILO of Subhashgram -Jeerat 400KV S/C line at Rajarhat	Jun'16	
15	400/220KV HVAC & 3000MW +/-800KV HVDC New Pooling Station in Alipurduar	Jun'16	Award placed in Mar'11. Supply, civil works & erection under progress. Land under acquisition. Partly land acquired.
16	400/220/33 KV Kishanganj Sub station (GIS)	Feb'16	*Erection & testing under progress. Target for commissioning March 2016*
17	400/220 KV Uttara (Pandiabil)	Mar'16	Alternate land acquired at Pandiabil. Land handed over in Mar'13. Supply, civil works & erection under progres. Progress severely affected due to repeated ROW.

18	400KV GIS Pooling Station (Jharkhand Pool) near Essar	Mar'16	*Target for Commissioning – April 16.*
19	400/220KV Rajarhat S/Stn. (GIS)	Jun'16	Supply & Civil works under progress. Land acquired in Feb'14. Progress hampered due to rains.

ITEM NO. C17:	**HIGHLIGHTS & GRID PERFORMANCE FOR THE PERIOD FROM JAN' 2016 TO APR' 2016**

A) Real time operation:

During the period under review, power supply position in the region was as under:

	Jan-15	Feb-15	Mar-15	Apr-15	Jan-16	Feb-16	Mar-16	Apr-16
Avg Frq. (Hz)	50.00	50.00	49.99	49.99	49.98	50.01	50.00	49.98
Pk Dmd (MW)	16116	16988	17898	17647	17173	17868	18719	19112
Energy Consum. (MU/day)	322	335	347	342	335	349	376	405
ISGS Gen (MU)	3527	3174	3548	3108	3403	3387	3399	3292
Region Gen (MU)	12373	11666	12769	12066	12392	12477	13813	14288
% increase in Reg Gen.	10.2	13.8	8.4	-0.2	0.2	6.9	8.2	18.4

B) System Operational Discipline during the period from Jan-16 to Apr-16

i) The month-wise energy drawls of ER constituents were as given hereunder:

	Jan-16		Feb-16		Mar-16		Apr-16	
	SCH	ACT	SCH	ACT	SCH	ACT	SCH	ACT
BSPHCL	1932	1932	1731	1746	1850	1881	1817	1877
JUVNL	362	376	354	372	342	371	419	489
DVC	-515	-522	-561	-573	-820	-817	-1115	-1144
OPTCL	597	651	631	688	777	821	714	742
WBSETCL	838	862	806	856	1183	1221	1340	1354
SIKKIM	39	36	40	34	40	36	38	33

C) Frequency & Voltage

Frequency profile for the period during **Jan-16 to Apr-16** is given hereunder. The frequency mostly remained within the allowable range for the entire period

Month	% of time for which frequency			
	<49.9	**49.9-50.05**	**> 50.05**	**IEGC band 49.9-50.05**
Jan-16	9.19	67.96	22.85	**67.96**

Feb-16	5.62	70.49	23.89	**70.49**
Mar-16	8.69	70.01	21.29	**70.01**
Apr-16	12.9	70.0	17.1	**70.0**

Maximum and minimum voltages recorded at some important 400 kV sub-stations were as follows:

	Jan-16		**Feb-16**		**Mar-16**		**16-Apr**	
SUB-STATION/	MAX.	MIN	MAX.	MIN	MAX.	MIN	MAX.	MIN
POWER STN.	(KV)	(KV)	(KV)	(KV)	(KV)	(KV)	(KV)	(KV)
FARAKKA	424	409	422	411	428	408	428	409
SUBHASGRAM	423	383	431	375	423	382	422	374
DURGAPUR	425	408	423	408	422	403	422	404
JEERAT	428	388	427	385	419	375	415	372
PURNEA	435	385	431	396	429	393	429	397
MUZAFFARPUR	418	381	412	363	412	392	422	389
JAMSHEDPUR	437	418	429	415	432	413	425	412
RENGALI	415	398	408	395	405	391	405	390
JEYPORE	428	372	420	379	421	368	425	370

D) Constituent-wise demand met is given below:

		Jan-15	**Feb-15**	**Mar 15**	**Apr 15**	**Jan-16**	**Feb-16**	**Mar 16**	**Apr-16**
BSPHCL	AVG MAX DMD(MW)	2603	2636	2617	2600	3291	3224	3170	3336
	MU/DAY	56	55	54	53	66	64	63	66
JUVNL	AVG MAX DMD(MW)	997	1025	965	975	1084	1068	1131	1134
	MU/DAY	22	23	22	22	23	23	24	24
DVC	AVG MAX DMD(MW)	2442	2447	2444	2467	2592	2549	2622	2767
	MU/DAY	58	57	57	58	59	58	60	65
ODISHA	AVG MAX DMD(MW)	3382	3469	3680	3697	3731	3818	4010	3881
	MU/DAY	66	67	75	78	69	74	79	78
WEST BENGAL	AVG MAX DMD(MW)	6538	6855	7364	7018	6191	6561	7224	7697
	MU/DAY	119	133	140	132	117	129	149	170

E) Inter-regional energy exchange during the review period were as follows:

(Figures in MU)

Region	**Jan-16**		**Feb-16**		**Mar-16**		**Apr-16**	
	SCH	ACT	SCH	ACT	SCH	ACT	SCH	ACT
NER	223	397	183	247	199	241	54	398

SR	252	293	432	547	464	534	399	311
WR	-196	151	302	254	167.3	64	198	62
NR	1351	703	1037	825	1045	769	1277	867
TOTAL	**1629**	**1543**	**1954**	**1873**	**1876**	**1607**	**1927**	**1639**

F) Reservoir levels of important hydro stations in ER during Jan-16 to Apr-16 (as on last day of the month) is given below:

STATION	MDDL/ FRL	**Jan-16**	**Feb-16**	**Mar-16**	**Apr-16**
BURLA	590/630 FT	622.5	619.7	615.7	609.8
BALIMELA	1440/ 1516 FT	1492.7	1487.9	1480.0	1477.0
RENGALI	109.7/ 123.5 MTR	118.0	117.5	116.1	114.3
U. KOLAB	844/ 858 MTR	855.0	853.6	851.7	849.6
INDRAVATI	625/ 641 MTR	634.6	633.9	633.0	631.8
MACHKUND	2685/ 2750 FT	2739.9	2735.2	2730.3	2724.5

G) IMPORTANT EVENTS :

1. 400kV Rangpo-Teesta stage-III circuit-I and II bay at Rangpo (bay no-402 and 406) first time charged at 16:18hrs and 16:37hrs of 07/01/16 respectively.
2. 400kV Rangpo-Kishanganj circuit-I and II bay at Rangpo (bay no-404 and 408) first time charged at 16:31hrs and 16:41hrs of 07/01/16 respectively.
3. 80MVA Station Transformer-IV at Sagardighi first time charged on no load at 17:22hrs of 08/01/16 from 400kV side.
4. 400kV Bus sectionalizer breaker-I at Maithon first time charged at 18:20hrs of 15/01/16.
5. 765/400kV, 1500MVA ICT-III at Angul first time charged at 12:43hrs of 23/01/16.
6. 765kV Angul-Jharsuguda-I along with associated bays and 240MVAr L/R at both Angul and Jharsuguda ends first time charged at 17:30hrs of 25/01/16.
7. 160MVA ICT-I at Siliguri first time charged on no load at 23:59hrs of 29/01/16.
8. 220/132kV, 100MVA ICT along with associated bays and 132kV bay of Muzaffarpur-Nepal-II at Muzaffarpur first time charged at 22:11hrs of 31/01/16.
9. 132/33 kV new 50 MVA Transformer at Bodhgaya (BSPTCL) GSS charged on 08.01.2016
10. 220/132 kV new 100 MVA Transformer at Khagaul (BSPTCL) GSS charged on 16.01.2016
11. 220/132 kV new 160 MVA Transformer at Darbhanga (BSPTCL) GSS charged on 18.01.2016
12. 220kV M.B. #1 & 2 of 220/132 KV DHARAMPUR GIS (WBSETCL) S/S charged via LILO arrangement of 220kV JRT-RISH #2 on 24.01.16 at 19:05hr & 19:07hr respectively.

13. 220/132kv 160MVA Tr #1 & 2 of 220/132 KV DHARAMPUR GIS (WBSETCL) S/S loaded in parallel on 25.01.16 at 12:58hr & 12:59hr respectively.
14. 220KV Krishnagar-Gokarna D/C lines (105.5 km) Charged & Loaded on 28.01.16 at 11:45 Hrs.
15. 400kV Muzaffarpur-Dhalkebar(Nepal) first time charged at 132kV level at 17:41hrs of 17/02/16. Subsequently power flow started from 17/02/16 onwards.
16. 132kV Chuzhachen-Melli was converted to 132kV Chuzhachen-Gangtok at 18:46hrs of 27/02/16 and 132kV Rangpo- Gangtok converted to 132kV Rangpo-Melli at 19:04hrs of 27/02/16.
17. 220 kV D/C NJP - TLDP-IV line (145 CKM) has been commissioned on 13/02/2016 under RFD Target 2015-16
18. 132/33 kV new 50 MVA Transformer at Kishanganj (BSPTCL) GSS charged on 01.02.2016
19. 132/33 kV new 50 MVA Transformer at Ara (BSPTCL) GSS charged on 10.02.2016.
20. 132/33 kV Madhupur (JUSNL) GSS was commissioned on 10.02.2016 with 2x50 MVA transformers.
21. 132 kV Madhupur-Jamtara D/C line (54 km) was charged on 10.02.2016.
22. 132 kV Patnagarh- Padampur line along with 20 MVA Transformer at Padampur (OPTCL) grid S/S was charged on 24.02.2016 at 18:40 Hrs.
23. 220/132 kV Atri (OPTCL)S/S was charged with 160 MVA Auto-II and LILO arrangement of 220 kV Mendhasal-Narendrapur line along with 20 MVA, 132/33 kV Transformer-I on 24.02.2016 at 15:10 Hrs.
24. 220kV Dalkhola-Siliguri-I & II LILOed at Kishanganj at 22:22hrs and 23:02hrs of 01/03/16 respectively.
25. 500MVA ICT at Kishanganj first time charged at 23:20hrs of 01/03/16 from LV side.
26. 765kV Gaya-Varanasi first time charged at 11:28hrs of 10/03/16 along with 240MVAr line reactor.
27. LILO of one circuit of 400kV Teesta-III-Kishangunj-D/C at location no 85 (length 10.89kM) at Rangpo GIS substation has been done via bays 404 and 408 at 11:43hrs (404bay) and 11:44hrs (408bay) of 10/03/16.
28. 400kV Patna-Kishanganj-II first time charged with 80MVAr line reactor at Kishanganj at 23:42hrs of 14/03/16.
29. 125MVAr bus reactor at Kishanganj charged for the first time at 23:59Hrs of 14/03/16.
30. 400kV Patna-Kishanganj-I first time charged along with 80MVAr line reactor at Kishanganj at 00:13hrs of 15/03/16.

31. 400kV Binaguri-Kishanganj-I and 400kV Purnea-Kishanganj-I (LILO of 400kV Binaguri-Purnea-III at Kishanganj) first time charged at 19:40hrs and 20:05hrs of 16/03/16 respectively.
32. 400kV Binaguri-Kishanganj-II and 400kV Purnea-Kishanganj-II (LILO of 400kV Binaguri-Purnea-IV at Kishanganj) first time charged at 20:55hrs and 21:13hrs of 16/03/16 respectively.
33. Nabinagar (BRBCL) Unit-1 (250MW) first time synchronised at 18:15hrs of 20/03/16.
34. 400kV Biharsariff-Varanasi-II with 80MVAr L/R at Biharsariff first time charged at 23:45hrs of 29/03/16.
35. 400kV Biharsariff-Varanasi-I first time charged at 00:43hrs of 30/03/16.
36. 400kV FSTPP-Malda-I & II first time charged after reconductoring works with Twin HTLS at 18:25hrs and 18:18hrs of 30/03/16.
37. 500MVA ICT at Sasaram first time charged at 19:19hrs of 30/03/16.
39. 160MVA ICT-1 at Purena (PG) charged for the first time at 13:22hrs of 31/03/16.
40. Raghunathpur Unit-II (600 MW) declared COD w.e.f. 00:00hrs of 31/03/16.
41. Raghunathpur Unit-I (600 MW) declared COD w.e.f. 22:00hrs of 31/03/16.
42. Teesta Low Dam HE Project, Stage-IV, Unit #2 (40 MW) declared COD w.e.f. 00:00 Hrs of 31/03/16.
43. 765kV Gaya-Varanasi-II was taken into service for the first time at 17:20hrs of 19/04/16.
44. 132 kV main bus of Ujanu S/s charged on 02.04.16 at 13:10 Hrs with 132 kV Siliguri-Ujanu (5.5 Km) line (which is LILO of 132 kV NBU- Siliguri line at Ujanu).
45. 132 kV Ujanu-NBU line (4.5 km) line charged on 02.04.16 at 13:23 Hrs.
46. 132/33 kV, 31.5 MVA Transformer-I was charged and loaded on 02.04.16 at 13:15 Hrs.
47. 132 kV Atri-Argul D/C line charged on 29th April, 2016.

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ANNEXURES

ANNEXURE – I

LIST OF PARTICIPANTS IN THE 33rd ERPC MEETING

Date: 25.06.2016 **Venue: Chanakya Hotel, Patna**

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ANNEXURE – II

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Details of Eastern Region

A. Telemetry not provided

A.1 Generating Stations

Sl. No.	User Name	Name of Generation Stations	Date of first sysnchonisation	Total Generation Capacity (in MW)	Remarks by constituentes / ERLDC 05.05.16
1	WBSETCL	Haldia (2 x 300)	Jan-15	600	ERLDC is not getting any real time ISOLATOR status ,SOE from HEL except Line, Unit site MW /MVAR. No response.
1	IPP	400 KV GMR (3X 350 MW)	Apr-13	1050	As per ERLDC guidelines no express voice /VOIP phones and stand by channel provided .
2		400 JITPL (600 x 2)		1200	Data Are highly instable . No stand by data channel and express voice commuincation integrated with ERLDC New Exchange
3		IBEUL (2 x 350 MW)		700	No stand by data channel and as per ERLDC guidelines no express voice /VOIP phones provided .
		Total (Non-telemetered stations)	**4**	**3550**	

A.2 Sub - Stations (765 & 400 kV)

Sl. No.	User Name	Name of sub-Stations	Voltage level	Date of first sysnchonisation	Remarks by constituentes / ERLDC 05.05.16
1	OPTCL	JSPL (Meramundali -400)	400 kV	Sep'10	Status are not reporting.

A.3 Sub - Stations (220 kV & 132 kV)

Sl. No.	User Name	Name of sub-Stations	Voltage level	Target date as per User	Remarks by constituentes / ERLDC 05.05.16
1	OPTCL	OPTCL CPP : 220 KV BPSL,CONCAST,BSL,JSL	220 / 132 kV	Dec-13	CONCAST NO DATA , JSL NO KV/HZ. BSL NO HZ .BPSL NO Bus Kv .
1	BSEB	Gopalganj	220 kV		Integrated Over PLCC /MUX
2		Darbhanga	220 kV		RTU under commissioning under upgradation project.
3		Kisanganj	132 KV		RTU commssioned over GPRS .
4		Arrah	132 KV		Arrah RTU commsioned /integrated but due to rennovation work at site stopped communicating. .
5		Rajgir	132 KV		RTU commissioned over PLCC & MUX.
6		Jagdishpur	132 KV		RTU under commissioning under upgradation project.
7		Sipara	220 KV		Integrated Over PLCC & MUX.
8		Hajipur (New)	220 KV		Integrated Over SDH.
9		Pusauli	220 KV		Integrated Over GPRS .
1	JSEB	Hatia New	220 kV	No Time Schedule	No Data available .No response .
2		Japla	132 KV		No Data available .No response .
3		Dumka	220 KV		No Data available .No response .

B. Telemetry provided but not working / working intermittently

B.1 Generating Stations

Sl. No.	User Name	Name of Generation Stations	Total Generation Capacity (in MW)	Target date as per User	Remarks by constituentes / ERLDC 05.05.16
1	OPTCL	220 KV Vedanta (9X 135 MW)	1215	Dec-13	Some CB / Isolators and KV / HZ point yet to be provided.No response .
1	JSEB	220 KV Tenughat (2X 210 MW)	420	Time Schedule not submitted	Data highly intermittent
2		220 KV Patratu (4x 50 + 2x100 + 4x110)	840	Time Schedule not submitted	Data highly intermittent
	BSEB	KBUNL			Data integrated .
1	NTPC	400 kV Farakka : (3x 200 + 2 x 500 MW + 600) Unit-6 and Unit -5 LV side MW/MVAR not available	2100	Time Schedule not submitted	No response .
2		BRBCL/Nabinagar TPP (4x250 MW)	1000	Time Schedule not submitted	No data available. As per ERLDC guidelines no express voice /VOIP phones provided .
3		BARH (2x550 MW)	1100		Unit site data not available since last 1 year.
1	Vedanta	SEL (4 x550 MW)	2200		All data stopped reporting since March 2016

B.2		Sub - Stations			Remarks by constituentes / ERLDC 05.05.16
Sl. No.	**User Name**	**Name of sub-Stations**	**Voltage level**	**Target date as per User**	Data not reporting
1		Barauni	132 kV		Under rennovation and modernization . Target July 2016
2		Dumraon	132 kV		Data reporting
3		Khagaul	132 kV		Data intermittent
5		Darbhanga	220 kv &132 kV		RTU under commissioning under upgradation project.
6		Dehri	220 KV		presently not reporting due to RTU problem. M/s chemtrols RTU vendor directed to rectify problem. Target- May-16
7		Khagul	220 KV		Data reporting
8		Samastipur	220 kV		RTU reporting.
9	BSPTCL	Sonenagar	132 kV		Under rennovation and modernization . Target July 2016
10		sultangaunj	132 kV		Under rennovation and modernization . Target July 2016
11		Lakhisarai	132		Data Intermittent
12		Karmanasa	132		Under rennovation and modernization . Target July 2016
13		Kahalgaon	132 kV		Data Intermittent
14		Jamaui	132		Data Intermittent
15		Begusarai	220		RTU reporting.
16		Banka	220 kv &132 kV		Data Intermittent
17		Valmikinagar	132 kV		Under rennovation and modernization . Target July 2016
18		Koshi	132 kV		Under rennovation and modernization . Target July 2016
1	JSEB	Jamtara	132 kV	Time Schedule not submitted	Data not available
2		Deoghar	132 kV	Time Schedule not submitted	Data not available
3		Garwah	132 kV	Time Schedule not submitted	Data not available
4		Goelkera	132 kV	Time Schedule not submitted	Data not available
5		Jaduguda	132 kV	Time Schedule not submitted	Data not available
6		Kendposi	132 kV	Time Schedule not submitted	Highly Intermittent
1	SIKKIM	Melli	132 KV		Data integrated.stopped reporting
1	PGCIL	Maithon	400 kV		Highly Intermittent
2		Ranchi 400	400 kV		Highly Intermittent
3		NTPC Kahalgaon	400 kV		Highly Intermittent
4		Malda	400 kV		Highly Intermittent
5		Dalkhola	220 kV		Highly Intermittent
6		Siliguri220	220 kV		Highly Intermittent
7		Purnea 400	400 kV		Highly Intermittent
8		Baripada	400 kV		Highly Intermittent
9		Subhasgram	400 kV		Highly Intermittent
10		MPL	400 kV		Highly Intermittent
11		Gaya	765 kV		Highly Intermittent
12		Jharsuguda	765 kV		Highly Intermittent
13		Banka	400 kV		Highly Intermittent
14		Indbharat	400 kV		Highly Intermittent
15		Lakhisarai	400 kV		Highly Intermittent
1	NTPC	Lalmatia	220 kV		Data stoppped reporting since Jan 2016

Orange phone Not Available

A. Substation and Station

S.No.	RTU	Extension No		Status
		Analog FXS	IP Phone	
1	Subashgram		20330015	Port Down/Phone Disconnected
2	Rangpoo	20330139	20330020	Port Down/Phone Disconnected
3	New Malli	20330140	20330021	Port Down/Phone Disconnected
4	Siliguri 220		20330023	Phone Adapter is missing
5	Siliguri 400		20330024	Port Down/Phone Disconnected
6	Jharsugura		20330040	Port Down/Phone Disconnected
7	Kalabadia		20330055	Link is not available
8	Keonjhar CS		20330047	Link is not available
9	Talcher HVDC			Link is not available
10	JITPL			Link is not available
11	Birpara		20330053	Port Down/Phone Disconnected
12	Bolangir		20330064	Link is not available
13	Jaypore		20330048	Link is not available
14	Indravati		20330063	Link is not available
15	Mujaffarpur		20330050	Port Down/Phone Disconnected
16	Teesta NHPC		20330062	Link is not available
17	SEL			Ports details Not available
18	GMR			Ports details Not available
19	Lalmatia			Ports details Not available
20	Bheramera HVDC(Bangladesh)			Ports details Not available
21	Adhunik Power, Jamshedpur			Link is not available

B SLDC

1	WBSETCL , Howarh			Orange phone not working
2	JUSNL ,Howarh			Orange phone not working
3	SLDC Sikkim			Orange phone not working

SAS/RTU lacking stand by channel

S.N.	Substation Name	Main RLDC		Backup RLDC		Remarks
		Main Channel	Std By Channel	Main Channel	Std By Channel	
1	Jeypore	Yes	NO	NO	NO	
2	Talcher HVDC	Yes	NO	NO	NO	
3	Indravati	Yes	NO	NO	NO	
4	Patna	Yes	NO	NO	NO	
5	Rengali	Yes	NO	NO	NO	
6	NTPC Talcher	Yes	NO	NO	NO	
7	Rourkela	Yes	NO	NO	NO	
8	Jamshepur	Yes	NO	NO	NO	
9	Maithon	Yes	NO	NO	NO	
10	Ranchi	Yes	NO	NO	NO	
11	Durgapur	Yes	NO	NO	NO	
12	Farakka NTPC	Yes	NO	NO	NO	
13	Kahalgaon NTPC	Yes	NO	NO	NO	
14	Biharshariff	Yes	Yes	NO	NO	
15	Baharampur	Yes	NO	NO	NO	
16	Lalmatia	Yes	NO	NO	NO	
17	Malda	Yes	NO	NO	NO	
18	Dalkhola	Yes	NO	NO	NO	
19	Purnea -220	Yes	NO	NO	NO	
20	Siliguri	Yes	NO	NO	NO	
21	Birpara	Yes	NO	NO	NO	
22	Binaguri	Yes	Yes	NO	NO	
23	Rangit NHPC	Yes	NO	NO	NO	
24	Purena -400	Yes	NO	NO	NO	
25	Sasaram	Yes	NO	NO	NO	
26	Baripada	Yes	NO	NO	NO	
27	Subhasgram	Yes	NO	NO	NO	
28	Teesta	Yes	NO	NO	NO	
29	Muzaffarpur	Yes	NO	NO	NO	
30	Gangtok	Yes	NO	NO	NO	
31	Arrah	Yes	NO	NO	NO	
32	Adhunik	Yes	NO	NO	NO	
33	Sterlite	Yes	NO	NO	NO	
34	MPL	Yes	NO	NO	NO	
35	Barh NTPC	Yes	NO	NO	NO	
36	Gaya	Yes	NO	NO	NO	
37	Bolangir	Yes	NO	NO	NO	
38	Keonjhar	Yes	NO	NO	NO	
39	Jorthang	Yes	NO	NO	NO	
40	Angul	Yes	NO	NO	NO	
41	Jharsuguda	Yes	NO	NO	NO	
42	Gati	Yes	NO	NO	NO	
43	Banka	Yes	NO	NO	NO	

44	Bheramara	Yes	NO	NO	NO	
45	Rangpo	Yes	NO	NO	NO	
46	Lakhisarai	Yes	NO	NO	NO	
47	Indbharat	Yes	NO	NO	NO	
48	Chaibasa	Yes	NO	NO	NO	
49	Nabinagar NTPC	Yes	NO	NO	NO	
50	JITPL	Yes	NO	NO	NO	
51	Melli (PG)	Yes	NO	NO	NO	
52	KIsanganj	Yes	Yes	NO	NO	

SLDC to ERLDC protection path not provided as per ERLDC.

S.N.	Link	Main RLDC		Backup RLDC	
		Main Channel	Std By Channel	Main Channel	Std By Channel
1	ERLDC - OPTCL	Yes	NO	NO	NO
2	ERLDC - BSPTCL	Yes	NO	NO	NO
3	ERLDC - JUSNL	Yes	NO	NO	NO
4	ERLDC - WBSETCL	Yes	NO	NO	NO
5	ERLDC - DVC	Yes	NO	NO	NO
6	ERLDC - Sikkim	Yes	NO	NO	NO
7	ERLDC - NLDC	Yes	NO	Yes	Yes

Current Status of Letter of Credit (LC) amount against DSM charges for ER constituents

Figures in Lacs of Rupees

Sl No	ER Constituents	No. of weeks in which Deviation Charge payable	No of times payment was delayed during 2015-16	Total Deviation charges payable to pool during 2015-16	Average weekly Deviation Charge liability	LC Amount	Due date of expiry	Remarks
		(A)	(B)	(C)	(D)	(E)	(F)	(G)
1	**BSPHCL**	42	42	9230.45609	177.50877	195.25965	03.01.2017	Opened for 529.52000 Lac
2	**DVC**	11	N/A	1176.42772	22.62361	24.88597	17.11.2016	Opened for 155.18882 Lac
3	**WBSETCL**	45	N/A	8089.38786	155.56515	171.12167	08.09.2016	Opened for 297.97176 Lac
4	**SIKKIM**	5	5	75.76714	1.45706	1.60277	04.10.2016	Opened for 2.85136 Lac
5	**MPL**	7	2	34.59999	0.66538	0.73192	31.08.2016	Opened for 8.76666 Lacs
6	**APNRL**	24	24	741.51734	14.25995	15.68594	20.08.2016	Opened for 87.04872 Lacs
7	**GMR**	19	7	929.588	17.87669	19.66436	15.07.2016	Opened for 25.58614 Lacs
8	**JUVNL**	36	36	4060.64239	78.08928	85.89820		**Not Opened**
9	**GATI**	8	6	261.0675	5.02053	5.52258		**Not Opened**
10	**VEDANTA**	48	15	7892.76469	151.78394	166.96233		**Not Opened**
11	**IND-BARATH**	46	16	248.75964	4.78384	5.26222		**Not Opened**

STATUS OF REACTIVE CHARGES

RECEIVABLE IN ER POOL AS PER PUBLISHED A/C UPTO 08.05.16 (2016 -17)
AS ON 31.05.2016

CONSTITUENT	AMOUNT RECEIVABLE IN THE POOL (Rs.)	AMOUNT RECEIVED IN THE POOL (Rs.)	OUTSTANDING (Rs.)
WBSETCL	125768328	37333370	88434958
JUVNL	0	0	0
GRIDCO	70874354	80098830	-9224476
SIKKIM	152983	152983	0
TOTAL	196795665	117585183	79210482

Note: (+ve) means payable by utility & (-ve) means receivable by utility

SUMMARY OF CONGESTION CHARGE RECEIPT AND PAYMENT STATUS

Bill upto 07.01.2013
Last Payment Disbursement Date - 13.05.2013

Figures in Rs. Lakhs

CONSTITUENTS	Receivable	Received	Payable	Paid	Outstanding
BSEB	0.67823	0.67823	0.39118	0.39118	0.00000
JSEB	16.37889	16.37889	2.61323	2.61323	0.00000
DVC	0.00000	0.00000	6.24040	6.24040	0.00000
GRIDCO	5.34488	5.34488	0.00000	0.00000	0.00000
WBSETCL	0.00000	7.42249	4.32834	11.75083	0.00000
SIKKIM	0.65609	6.20909	0.00000	5.55300	0.00000
NTPC	6.93152	6.93152	7.42249	7.42249	0.00000
NHPC	0.70445	0.70445	0.05875	0.05875	0.00000
MPL	4.81694	4.81694	0.85169	0.85169	0.00000
STERLITE	7.70504	7.70504	0.00000	0.00000	0.00000
Pool Balance	0.00000	0.00000	21.30996	21.30996	0.00000
TOTAL	**43.21604**	**56.19153**	**43.21604**	**56.19153**	0.00000

% Realization **As on 31.05.2015**

Receivable: Receivable by ER POOL Payable Payable by ER POOL

Received Received by ER POOL Paid Paid by ER POOL

"- ve" Payable by ER pool "+ ve" Receivable by ER pool

DETAILS OF DISBURSEMENT TO POWER SYSTEM DEVELOPMENT FUND

Sl No	Nature of Amount	Amount transferred to PSDF (Rs in Lac)	Date of Disbursement	Cheque No	Remarks
1	**Opening Balance (upto 31.12.15)**	**83873.87922**			
2	Addl. Dev	18.40442	01.01.16		Addl Dev Charge 15-16
3	Addl. Dev	16.46976	05.01.16		Addl Dev Charge 15-16
4	Addl. Dev	33.27577	07.01.16		Addl Dev Charge 15-16
5	Addl. Dev	19.11532	11.01.16		Addl Dev Charge 15-16
6	Addl. Dev	90.94357	14.01.16		Addl Dev Charge 15-16
7	Addl. Dev	19.04467	18.01.16		Addl Dev Charge 15-16
8	Addl. Dev	50.72543	20.01.16		Addl Dev Charge 15-16
9	Addl. Dev	11.10228	22.01.16		Addl Dev Charge 15-16
10	Addl. Dev	45.43206	27.01.16		Addl Dev Charge 15-16
11	Addl. Dev	96.62204	29.01.16		Addl Dev Charge 15-16
12	Reactive Charge	450.00000	02.02.16		Reactive Energy Charge_15-16
13	Addl. Dev	69.01901	04.02.16		Addl Dev Charge 15-16
14	Addl. Dev	45.99429	11.02.16		Addl Dev Charge 15-16
15	Addl. Dev	50.44878	15.02.16		Addl Dev Charge 15-16
16	Addl. Dev	371.30972	17.02.16		Addl Dev Charge 15-16
17	Addl. Dev	91.04585	22.02.16		Addl Dev Charge 15-16
18	Addl. Dev	121.28575	24.02.16		Addl Dev Charge 15-16
19	Addl. Dev	40.83267	29.02.16		Addl Dev Charge 15-16
20	Addl. Dev	61.45400	02.03.16		Addl Dev Charge 15-16
21	Addl. Dev	16.51444	04.03.16		Addl Dev Charge 15-16
22	Addl. Dev	142.93695	09.03.16		Addl Dev Charge 15-16
23	Addl. Dev	55.54777	15.03.16		Addl Dev Charge 15-16
24	Addl. Dev	85.71223	17.03.16		Addl Dev Charge 15-16
25	Addl. Dev	58.13810	21.03.16		Addl Dev Charge 15-16
26	Addl. Dev	253.40681	23.03.16		Addl Dev Charge 15-16
27	Addl. Dev	25.92020	28.03.16		Addl Dev Charge 15-16
28	Reactive Charges	250.00000	28.03.16		Reactive Charges_15-16
29	Addl. Dev	83.33978	01.04.16		Addl Dev Charge 15-16
30	Addl. Dev	43.77416	05.04.16		Addl Dev Charge 15-16
31	Addl. Dev	31.83984	07.04.16		Addl Dev Charge 15-16
32	Addl. Dev	52.08622	11.04.16		Addl Dev Charge 15-16
33	Addl. Dev	107.23773	13.04.16		Addl Dev Charge 15-16
34	Addl. Dev	220.15330	19.04.16		Addl Dev Charge 15-16
35	Addl. Dev	76.84824	21.04.16		Addl Dev Charge 15-16
36	Addl. Dev	20.84026	26.04.16		DSM Interest 2014-15(Paid by APNRL)
37	Addl. Dev	10.01920	26.04.16		Addl Dev Charge 16-17
43	Addl. Dev	432.25696	28.04.16		Addl Dev Charge 16-17
44	Addl. Dev	117.08707	02.05.16		Addl Dev Charge 16-17
45	Addl. Dev	41.65418	04.05.16		Addl Dev Charge 16-17
46	Addl. Dev	114.33049	06.05.16		Addl Dev Charge 15-16 & 16-17
47	Deviation Interest	38.50018	06.05.16		Deviation Interest
48	Addl. Dev	35.54178	10.05.16		Addl Dev Charge 16-17
49	Addl. Dev	448.87953	31.05.16		Addl Dev Charge 16-17
	Total	**88338.97003**			

Distribution of DSM Interest Recovered of 2014-15(Bal) and FY 2015-16

DSM Interest Amount Recovered		PAID TO THE CONSTITUENTS		
CONSTITUENT	2014-15(Bal) & 2015-16	CONSTITUENT	FY 2015-16	Date
	Amount in (Rs)		Amount in (Rs)	
APNRL	4124088	GRIDCO	25162	25.04.16
BSPHCL	15406124	SIKKIM	497994	25.04.16
BSPHCL	1166696	NTPC	70	25.04.16
		NHPC	20173	25.04.16
		MPL	47851	25.04.16
		NVVN (IND-BD)	385	25.04.16
		IBEUL	118087	25.04.16
		TPTCL	5098	25.04.16
		SR POOL	64901	25.04.16
		PSDF	5934044	25.04.16 & 06.05.16
		NR POOL	13983143	15.04.16, 06.05.16 & 25.05.16
TOTAL	206,96,908		206,96,908	

SUMMARY OF RRAS CHARGE RECEIPT AND PAYMENT STATUS

BILL from 18.04.16 to 01.05.16 (upto Week - 5 of 2016 - 17)
Last Payment Disbursement Date - 23.05.16

Figures in Rs. Lakhs

CONSTITUENTS	Receivable	Received	Payable	Paid	Outstanding
FSTPP STG-I	0.00000	0.00000	4.47144	0.00000	**4.47144**
FSTPP STG-II	0.00000	0.00000	8.18210	0.00000	**8.18210**
KhSTPP STG-I	0.33758	0.00000	2.48227	0.00000	**2.14469**
KhSTPP STG-II	0.00000	0.00000	0.63856	0.00000	**0.63856**
TSTPP STG-I	0.00000	0.00000	13.33413	0.00000	**13.33413**
BARH STG-I	0.00000	0.00000	0.00000	0.00000	**0.00000**
BARH STG-II	0.33133	0.00000	10.79423	0.00000	**10.46290**
NTPC TOTAL	**0.66891**	**0.00000**	**39.90273**	**14.24540**	**24.98842**
RANGIT	0.00000	0.00000	0.00000	0.00000	**0.00000**
TEESTA-V	0.00000	0.00000	0.00000	0.00000	**0.00000**
NHPC TOTAL	**0.00000**	**0.00000**	**0.00000**	**0.00000**	**0.00000**
TOTAL	**0.66891**	**0.00000**	**39.90273**	**14.24540**	**24.98842**

As on **31.05.16**

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

Status of Reconciliation of Deviation Pool Account

	2014-15				2015-16			
Name of The Utility	**Q1 (01.07.14)**	**Q2 (08.10.14)**	**Q3 (05.01.15)**	**Q4 (07.04.15)**	**Q1 (01.07.15)**	**Q2(05.10.15)**	**Q3(05.01.16)**	**Q4(05.04.16)**
Inter Regional								
WR	YES	YES	YES	YES	YES	NO	YES	YES
SR	NO	NO	YES	YES	YES	YES	YES	YES
NER	YES	YES	NO	YES	NO	NO	YES	YES
NR	NO	NO	NO	NO	NO	NO	NO	NO
Intra Regional								
BSPHCL	NO	NO	NO	NO	NO	NO	NO	NO
JUVNL	YES	YES	YES	NO	NO	NO	NO	NO
DVC	YES	YES	YES	YES	YES	YES	YES	YES
GRIDCO	YES	YES	YES	NO	YES	YES	YES	YES
WBSETCL	YES	YES	YES	YES	YES	YES	YES	YES
SIKKIM	NO	NO	NO	NO	NO	NO	NO	NO
NTPC	YES	YES	YES	YES	YES	YES	YES	YES
NHPC	YES	YES	YES	YES	YES	YES	YES	YES
MPL	YES	YES	YES	YES	YES	YES	YES	YES
VEDANTA LTD.	YES	YES	YES	YES	YES	YES	YES	YES
APNRL	YES	YES	YES	YES	YES	YES	YES	YES
CHUZACHEN(GATI)	YES	YES	YES	YES	YES	YES	YES	YES
NVVN	YES	YES	YES	YES	YES	YES	YES	YES
GMR	YES	YES	YES	YES	YES	NO	NO	YES
JITPL	YES	YES	YES	YES	YES	YES	YES	YES
INBEUL	N/A	N/A	NO	YES	NO	NO	NO	NO
TPTCL (DAGACHU)	N/A	N/A	N/A	YES	YES	YES	YES	YES
JLHEP(DANS ENERGY)	N/A	N/A	N/A	N/A	N/A	N/A	YES	YES

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

Reconciliation Between Open Access department of ERLDC and SLDCs, STUs														
S. No.	STUs / SLDCs Name	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16
	Date of Issuance	18-May-15	16-Jun-15	16-Jul-15	12-Aug-15	18-Sep-15	19-Oct-15	12-Nov-15	14-Dec-15	15-Jan-16	15-Feb-16	15-Mar-16	08-Apr-16	13-May-16
1	WBSETCL - SLDC & STU	YES	YES	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO	NO
2	DVC - SLDC	NA	NA	NA	YES	YES	YES	YES	YES	YES	NA	YES	YES	NA
3	OPTCL-SLDC and STU	NA	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Reconciliation Between Open Access department of ERLDC and Applicants					
S. No.	Applicants Name	Quarter-I(Apr-15-June-15)	Quarter-II(Jul-15-Sep-15)	Quarter-III(Oct-15-Dec-15)	Quarter-IV(Jan-16-Mar-16)
	Date of Issuance	16-Jul-15	19-Oct-15	15-Jan-16	08-Apr-16
1	BSPHCL	NA	NA	YES	NA
2	DVC	NA	NA	NA	YES
3	GMR	YES	YES	NA	YES
4	JITPL	YES	YES	YES	YES
5	JUVNL	NA	YES	NA	NA

Reconciliation Between Open Access department of ERLDC and CTU														
S. No.	STUs / SLDCs Name	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16
	Date of Issuance	18-May-15	16-Jun-15	16-Jul-15	12-Aug-15	18-Sep-15	19-Oct-15	12-Nov-15	14-Dec-15	15-Jan-16	15-Feb-16	15-Mar-16	08-Apr-16	13-May-16
1	CTU(POWERGRID)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

List of Time Drifted SEMs in ER

SNO	Sub Station	METER SNO	FEEDER NAME	DCU TIME	METER TIME	DIFF(min)
1	BANKA(BSPTCL)	NP-7833-A	132 KV BANKA(PG)	12:44:39	12:53:57	9
2	BIRPARA(PG)	NP-5891-A	HV SIDE OF 220 ICT-2	11:44:31	12:07:38	23
3	BIRPARA(PG)	NP-6462-A	220 KV SALAKATI (NER) -1	11:43:38	11:34:55	-9
4	BIRPARA(PG)	NP-6463-A	220 KV SALAKATI (NER) -2	11:42:42	11:34:10	-8
5	BIRPARA(PG)	NP-6465-A	220 KV CHUKHA (CHPC) -1	11:40:50	11:33:31	-7
6	BIRPARA(PG)	NP-6490-A	BIRPARA END OF MALBASE	11:41:46	11:30:18	-11
7	BIRPARA(PG)	NP-6491-A	BIRPARA END OF SILIGURI (PG) -1	11:39:01	11:29:24	-10
8	BIRPARA(WBSETCL)	NP-5893-A	BIRPARA END OF BIRPARA (PG)-2	12:11:49	12:29:47	18
9	BIRPARA(WBSETCL)	NP-6489-A	BIRPARA END OF BIRPARA (PG)-1	12:30:53	12:22:21	-8
10	BOLANGIR(PG)	NP-7536-A	315 MVA ICT-II	11:31:24	11:44:06	13
11	BOLANGIR(PG)	NP-7537-A	BOLANGIR END OF JEYPORE-1	12:29:53	12:39:41	10
12	BOLANGIR(PG)	NP-7538-A	BOLANGIR END OF JINDAL(JDL)	12:31:27	12:42:47	11
13	CHANDIL(JUVNL)	NP-7434-A	CHANDIL END OF RANCHI (PG)	12:29:01	12:40:47	11
14	CHANDIL(JUVNL)	NP-7435-A	CHANDIL END OF HATIA(JUVNL)	10:23:47	10:33:33	10
15	CHANDIL(JUVNL)	NP-7436-A	220 KV SANTALDIH (WB)	10:25:21	10:36:35	11
16	CHANDIL(JUVNL)	NP-7461-A	CHANDIL END OF MANIQUE (DVC)	10:24:34	10:31:26	7
17	DALKHOLA(PG)	NP-5068-A	220 KV DALKHOLA (WB) LINE-2	12:32:58	12:51:06	19
18	DALKHOLA(PG)	NP-7969-A	220 DALKHOLA(WBSETCL) LINE-1	12:12:11	12:23:38	11
19	DEHRI(BSPTCL)	NP-6098-A	132 KV PUSAULI (PG)	11:51:32	12:01:31	10
20	DEHRI(BSPTCL)	NP-7397-A	220 KV GAYA(PG) LINE-II	12:20:45	12:31:03	11
21	DEHRI(BSPTCL)	NP-7449-A	220 KV GAYA(PG) LINE-I	12:19:58	12:30:13	11
22	DUMRAON(BSPTCL)	NP-6067-A	132 KV ARAH (PG)	11:44:52	11:51:02	7
23	DURGAPUR(PG)	NP-5831-A	400 KV B NAGAR-1 LINE MAIN	11:10:09	11:18:36	8
24	DURGAPUR(PG)	NP-7557-A	400 KV SDG LINE 2	10:31:25	10:44:25	13
25	DURGAPUR(PG)	NP-7954-A	400 KV FARAKKA LINE 1	11:33:02	11:42:57	9
26	DURGAPUR(PG)	NP-7975-A	400 KV FARAKKA 2	11:35:48	11:47:05	12
27	FARAKKA(NTPC)	NP-7553-A	FARAKKA GT5	09:02:39	09:15:34	13
28	FARAKKA(NTPC)	NP-7928-A	FARAKKA GT-3	09:13:30	09:23:52	10
29	FARAKKA(NTPC)	NP-7960-A	FARAKKA (GT1)	09:14:17	09:24:45	10
30	FARAKKA(NTPC)	NP-7986-A	FARAKKA GT-2	09:15:04	09:26:01	11
31	FATUA(BSPTCL)	NP-7850-A	220 KV PATNA (PG)	12:25:07	12:32:27	7
32	GANGTOK(PG)	NP-6025-A	132/66 KV ICT-2	12:15:50	12:31:08	16
33	GANGTOK(PG)	NP-6028-A	132/66 KV ICT-2	11:36:31	11:47:33	11
34	HAJIPUR(BSPTCL)	NP-7851-A	220KV MUZAFFARPUR -1 (PG)	06:18:21	06:30:03	12
35	HAJIPUR(BSPTCL)	NP-7852-A	220KV MUZAFARPUR -2(PG)	10:16:52	10:26:28	10
36	HATIA(JUVNL)	NP-6121-A	HATIA END OF CHANDIL (JUVNL)	11:45:37	12:03:53	18
37	HATIA(JUVNL)	NP-6122-A	HATIA END OF RANCHI (PG)	11:44:44	11:54:58	10
38	JAMSHEDPUR(DVC)	NP-6010-B	220 KV JINDAL(GRIDCO)	12:13:50	12:41:16	28
39	JEYPORE(PG)	NP-5955-A	HV SIDE 315 MVA ICT -1	10:26:50	10:56:55	30
40	JEYPORE(PG)	NP-5956-A	HV SIDE 315 MVA ICT -2	10:27:48	11:01:41	34
41	JEYPORE(PG)	NP-5957-A	220 KV JEYNAGAR (GRIDCO) -1	10:28:40	11:01:28	33
42	JEYPORE(PG)	NP-5958-A	220 KV JEYNAGAR (GRIDCO) -2	10:29:32	11:05:32	36
43	JEYPORE(PG)	NP-5959-A	JEYPORE END OF INDRAVATI (PG)	10:30:27	10:58:17	28
44	JEYPORE(PG)	NP-5960-A	400 KV M MUNDALI (GRIDCO)	10:31:19	11:01:47	30
45	JEYPORE(PG)	NP-5962-A	JEYPORE END OF GAJUWAKA (PG) -2	12:32:03	13:02:13	30
46	JITPL	NP-7604-A	400 KVANGUL(PG) LINE-2 (MAIN)	11:32:31	11:39:06	7
47	JITPL	NP-7895-A	JINDAL-ANGUL(PG) LINE-1 (MAIN)	11:33:18	11:40:05	7
48	JITPL	NP-7947-A	400 KV ANGUL(PG) LINE-2 (CHECK)	11:34:52	11:45:52	11
49	JITPL	NP-7948-A	400 KV ANGUL(PG) LINE-1 (CHECK)	12:35:33	12:46:43	11
50	KAHALGAON(BSPTCL)	NP-6075-A	132 KV LALMATIA LINE-I	12:05:32	12:13:40	8
51	KAHALGAON(BSPTCL)	NP-6076-A	132 KV KAHALGAON (NTPC)	11:46:31	11:56:54	10
52	KALIMPONG(WBSETCL)	NP-5994-A	Melli Bazar 1	12:26:18	12:51:32	25
53	KARAMNASA(BSPTCL)	NP-6017-B	132 KV CHANDAULI (UPSEB)	10:32:58	10:53:02	21
54	KHAGAUL(BSPTCL)	NP-5833-A	KHAGAUL END OF PATNA	11:49:19	11:59:28	10
55	KHARAGPUR(WBSETCL)	NP-7563-A	400 KV BARIPADA(PG)	12:28:22	12:40:47	12
56	KISHANGANJ(BSPTCL)	NP-6085-A	KISHANGANJ END OF DALKHOLA (WB)	12:06:59	12:15:06	9
57	KODERMA(DVC)	NP-7012-A	400 KV - BIHARSHARIFF (PG)-1 MAIN	11:35:35	11:42:59	7
58	KODERMA(DVC)	NP-7457-A	400 KV - BIHARSHARIFF (PG)-1 CHECK	11:37:09	11:48:56	11
59	KODERMA(DVC)	NP-7890-A	400 KV GAYA (PG)-2 (MAIN)	11:29:25	11:38:11	9
60	KODERMA(DVC)	NP-7891-A	400 KV MAITHON (PG)-1MAIN	11:30:58	11:38:59	8
61	KODERMA(DVC)	NP-7892-A	400 KV MAITHON (PG)-1 CHECK	11:32:30	11:46:09	14
62	KODERMA(DVC)	NP-7893-A	400 KV GAYA (PG)-2 (CHECK)	11:34:02	11:41:36	7
63	KURSEONG(WBSETCL)	NP-7541-A	132 KV RANGIT(NHPC)	12:14:03	12:22:52	8
64	LALMATIA(JUVNL)	NP-6107-A	132 KV KAHALGAON (BSPHCL)	10:02:28	10:13:15	11
65	LALMATIA(JUVNL)	NP-6108-A	132 KV KAHALGAON (NTPC)	10:05:58	10:16:04	11
66	LALMATIA(JUVNL)	NP-6109-A	220 KV FARAKKA (NTPC)	10:06:50	10:15:41	9
67	MAITHON(PG)	NP-5206-A	MAITHON END OF MEJIA LINE-1	11:31:30	11:57:32	26
68	MAITHON(PG)	NP-5225-A	MAITHON END OF MEJIA LINE-2	11:25:01	11:51:31	26
69	MAITHON(PG)	NP-6447-A	MAITHON END OF JAMSHEDPUR (PG)	11:27:49	11:17:56	-10
70	MAITHON(PG)	NP-6451-A	220 KV KALYANESWARI (DVC) -2	11:21:20	11:08:29	-13
71	MAITHON(PG)	NP-6453-A	HV SIDE OF MAITHON 315 MVA ICT -1	09:41:36	09:27:12	-14
72	MAITHON(PG)	NP-6509-A	220 KV KALYANESHWARI LINE-3	11:23:09	11:10:39	-13
73	MAITHON(PG)	NP-6510-A	220 KV KALYANESHWARI LINE-4	11:24:05	11:13:24	-11
74	MAITHON(PG)	NP-6519-A	400 KV MAITHON RB (MPL)-1	11:30:37	11:18:03	-12
75	MAITHON(PG)	NP-6520-A	400 KV MAITHON RB (MPL)-2	11:29:41	11:18:42	-11
76	MAITHON(PG)	NP-6521-A	MAITHON END OF MEJIA(DVC)	11:28:42	11:21:35	-7
77	MAITHON(PG)	NP-6529-A	220 KV KALYANESWARI (DVC) -1	11:22:16	11:11:10	-11
78	MAITHON(PG)	NP-7492-A	MAITHON END OF DURGAPUR(PG)-II	11:34:44	11:47:52	13
79	MAITHON(PG)	NP-7534-A	MAITHON END OF DURGAPUR(PG)-I	11:33:57	11:45:22	12
80	MAITHON(PG)	NP-7535-A	MAITHON END OF RTPS -2	09:51:49	10:04:42	13
81	MAITHON(PG)	NP-7550-A	MAITHON END OF KODERMA LINE-I	11:37:05	11:49:03	12
82	MAITHON(PG)	NP-7551-A	MAITHON END OF KODERMA LINE-II	11:37:52	11:49:07	12
83	MAITHON(PG)	NP-7902-A	MAITHON END OF RANCHI LINE	11:35:31	11:45:42	10
84	MAITHON(PG)	NP-7903-A	MAITHON END OF KAHALGAON LINE-1	11:33:10	11:44:12	11

85	MAITHON(PG)	NP-7904-A	MAITHON END OF KAHALGAON LINE-2	11:32:23	11:43:22	11
86	MALDA(PG)	NP-6477-A	220 KV DALKHOLA FDR1	12:06:49	11:51:19	-15
87	MALDA(PG)	NP-6478-A	132 KV MALDA WBSETCL2	11:57:10	11:40:21	-17
88	MALDA(PG)	NP-6479-A	220 KV DALKHOLA FDR2	12:05:03	11:46:46	-19
89	MALDA(PG)	NP-7555-A	132 KV MALDA WBSETCL1	12:00:30	12:13:31	13
90	MALDA(PG)	NP-7925-A	220 KV ICT3	12:08:35	12:19:46	11
91	MALDA(PG)	NP-7926-A	220 KV ICT-5	12:03:32	12:14:44	11
92	MALDA(PG)	NP-7927-A	400 KV PURNIA2	12:11:37	12:22:35	11
93	MALDA(PG)	NP-7976-A	400 KV PURNIA1	10:33:44	10:44:14	11
94	MALDA(PG)	NP-7977-A	132 KV MALDA ICT-1	11:58:59	12:08:13	10
95	MALDA(PG)	NP-7978-A	132 KV MALDA ICT-2	12:02:01	12:12:38	10
96	MALDA(WBSETCL)	NP-6480-A	132 KV PGCIL CKT-1	10:32:01	10:24:21	-8
97	MEJIA(DVC)	NP-5226-A	MEJIA END OF MAITHON(PG)-1	10:36:39	10:54:44	18
98	MEJIA(DVC)	NP-5227-A	MEJIA END OF MAITHON(PG)-2	10:39:53	10:53:48	14
99	MEJIA(DVC)	NP-6508-A	MEJIA END OF JAMSHEDPUR (PG)	12:42:54	12:31:05	-11
100	MEJIA(DVC)	NP-6532-A	HV SIDE OF MEJIA GT-2	10:41:39	10:29:53	-12
101	MEJIA(DVC)	NP-6534-A	HV SIDE OF MEJIA GT-1	10:45:20	10:33:38	-12
102	MEJIA(DVC)	NP-6557-A	MEJIA END OF DSTPS (DVC)	10:48:52	10:36:00	-12
103	MEJIA(DVC)	NP-6776-A	MEJIA END OF DSTPP (DVC)	10:47:06	10:32:25	-15
104	MEJIA(DVC)	NP-7493-A	MEJIA END OF JAMSHEDPUR (PG)	10:50:35	11:01:01	11
105	MEJIA(DVC)	NP-7494-A	MEJIA END OF MAITHON(PG)-1	10:35:08	10:45:34	10
106	MEJIA(DVC)	NP-7495-A	MEJIA END OF MAITHON(PG)-2	10:38:22	10:54:11	16
107	MELLI(SIKKIM)	NP-5849-A	66 KV Kalimpong	11:48:53	11:59:42	11
108	MPL	NP-7564-A	400 KV MAITHON (PG)-1 (MAIN)	12:07:31	12:15:07	8
109	MPL	NP-7568-A	HV SIDE OF MAITHON RB GT-1	12:02:22	12:12:22	10
110	MPL	NP-7970-A	400 KV RANCHI (PG)-1 (MAIN)	10:08:15	10:18:13	10
111	MPL	NP-7971-A	400 KV RANCHI (PG)-2 (MAIN)	12:17:13	12:28:01	11
112	MPL	NP-7972-A	HV SIDE OF MAITHON RB GT-2	10:06:41	10:18:34	12
113	MUZAFFARPUR(PG)	NP-5233-A	220 KV HAJIPUR(BSPHCL) LINE-1	05:55:02	06:06:23	11
114	MUZAFFARPUR(PG)	NP-5234-A	220 KV HAJIPUR(BSPHCL) LINE-2	11:56:06	12:04:45	8
115	PATNA(PG)	NP-5271-A	220 KV SIDE OF PATNA ICT-1	12:23:31	12:30:50	7
116	PATNA(PG)	NP-5832-A	220 KV KHAGAUL(BSPHCL)	10:23:36	10:30:20	7
117	PATNA(PG)	NP-5865-A	220 KV PATNA - FATUA	10:14:54	10:22:18	8
118	PATNA(PG)	NP-7838-A	220 KV SIPARA(BSPHCL) LINE-II	10:29:15	10:37:31	8
119	PATNA(PG)	NP-7864-A	220 KV SIPARA(BSPHCL) LINE-I	10:26:30	10:36:22	10
120	PATRATU(JUVNL)	NP-6003-B	132 KV TRANSFER BUS	10:30:27	10:41:53	11
121	PATRATU(JUVNL)	NP-6004-B	132 KV PATRATU (DVC) -1	12:30:24	12:47:34	17
122	PATRATU(JUVNL)	NP-6005-B	132 KV PATRATU (DVC) -2	10:28:41	10:44:42	16
123	PURNEA(BSPTCL)	NP-6088-A	PURNEA END OF PURNEA (PG) -1	02:25:51	02:32:20	7
124	PURNEA(BSPTCL)	NP-6090-A	PURNEA END OF PURNEA (PG) -3	10:24:15	10:31:33	7
125	PURNEA(PG)	NP-6081-A	132 KV PURNEA (BIHAR) -1	11:41:25	11:49:46	8
126	PURNEA(PG)	NP-6083-A	132 KV PURNEA (BIHAR) -3	11:48:03	11:57:49	9
127	PURNEA(PG)	NP-7419-A	220 KV DALKHOLA (PG) -2	11:50:36	12:03:42	13
128	PURNEA(PG)	NP-7420-A	220 KV DALKHOLA (PG) -1	11:49:49	12:02:35	13
129	PURNEA(PG)	NP-7421-A	400 KV MUZAFFARPUR -1	10:07:17	10:18:30	11
130	PURNEA(PG)	NP-7422-A	400 KV MUZAFFARPUR LINE-2	12:06:31	12:19:29	13
131	PURNEA(PG)	NP-7423-A	PURNEA END OF BINAGURI (PG)-2	12:03:55	12:17:29	14
132	PURNEA(PG)	NP-7424-A	PURNEA END OF BINAGURI (PG)-1	12:03:08	12:14:58	11
133	PURNEA(PG)	NP-7828-A	220 KV MADHEPURA(BSPHCL) -1	12:02:21	12:09:36	7
134	PURNEA(PG)	NP-7829-A	220 KV MADHEPURA(BSPHCL) -2	12:01:34	12:12:39	11
135	PURNEA(PG)	NP-7835-A	400 KV BIHARSHARIFF LINE-2	10:08:49	10:17:54	9
136	PURNEA(PG)	NP-7894-A	400 KV BIHARSHARIFF LINE-1	10:08:03	10:20:19	12
137	RANCHI(PG)	NP-7402-A	400 KV RANCHI NEW(PG) LINE-3	09:17:32	09:31:22	14
138	RANCHI(PG)	NP-7406-A	400 KV BARIPADA (PG)	11:12:44	11:24:17	12
139	RANCHI(PG)	NP-7837-A	400 KV RANCHI NEW(PG) LINE-1	09:15:59	09:25:57	10
140	RANCHI(PG)	NP-7873-A	400 KV RANCHI NEW(PG) LINE-4	09:18:19	09:29:04	11
141	RANCHI(PG)	NP-7881-A	220 KV HATIA LINE 1	09:02:41	09:12:15	10
142	ROURKELA(PG)	NP-5930-A	315 MVA ICT -2	12:10:30	12:23:34	13
143	ROURKELA(PG)	NP-5931-A	400 KV JAMSHEDPUR (PG)-2	11:08:38	11:25:38	17
144	ROURKELA(PG)	NP-5933-A	220 KV TARKERA (GRIDCO)-2	12:12:19	12:22:42	10
145	ROURKELA(PG)	NP-7965-A	400 KV RAIGARH (WR)-2	11:05:09	11:13:51	8
146	SIPARA(BSPTCL)	NP-7870-A	220 KV PATNA (PG) LINE-2	10:00:39	10:08:27	8
147	SONNAGAR(BSPTCL)	NP-6013-B	132 KV RIHAND(UPSEB)	12:25:01	12:40:48	15
148	SONNAGAR(BSPTCL)	NP-6015-B	132 KV JAPLA (JUVNL)	10:24:08	10:40:43	16
149	SUBHASHGRAM(PG)	NP-7566-A	315 MVA ICT 4 - 220 KV	12:23:58	12:35:37	12
150	SUBHASHGRAM(PG)	NP-7938-A	400 KV HALDIA LINE 1	11:22:21	11:29:12	7
151	SUBHASHGRAM(PG)	NP-7996-A	315 MVA ICT 3	12:24:45	12:32:32	8
152	SUNDERGARH(PG)	NP-7896-A	400 KV RAIGARH(WR) LINE-1	11:49:36	11:58:02	9
153	SUNDERGARH(PG)	NP-7898-A	400 KV ROURKELA(PG) LINE-1	12:40:23	12:51:51	11
154	SUNDERGARH(PG)	NP-7912-A	400 KV ROURKELA(PG) LINE-2	12:38:49	12:48:04	10
155	SUNDERGARH(PG)	NP-7913-A	400 KV RAIGARH(WR) LINE-2	12:13:02	12:21:46	8
156	TENUGHAT(JUVNL)	NP-6115-A	220 KV BIHARSARIFF(BIHAR)	12:13:44	12:23:39	10
157	TISCO(DVC)	NP-7408-A	400 KV JAMSHEDPUR (PG)	11:13:31	11:23:59	10
158	VEDANTA(IPP)	NP-6527-A	ST-2	11:35:26	11:47:00	12
159	VEDANTA(IPP)	NP-6528-A	GT-2	11:33:39	11:47:30	14
160	VEDANTA(IPP)	NP-6540-A	GT-1	10:32:41	10:46:43	14
161	VEDANTA(IPP)	NP-6543-A	ST-1	11:34:34	11:46:21	12
162	VEDANTA(IPP)	NP-6545-A	400 KV RAIGARH (WR)-2	11:05:56	10:53:56	-12
163	VEDANTA(IPP)	NP-6556-A	GT-4	12:41:10	12:50:48	9

Date of Commercial Operation(DOCO) of the Asstes

A	**Transmission System for Phase-I Generation Projects in Jharkhand & West Bangal Part-A2**	**DOCO**	**Approved Cost**	**Standing Committee Reference**	**RPC Meeting Reference**	**Sharing of Charges**
01	3x80 MVAR Switchable line Reactor of 765kV S/C Gaya - Varanasi line used as Bus Reactor along-with associated bays at Gaya Substation	02/01/16	Rs.2422.66 Cr.(including IDC of Rs. 140.70 Cr.).	SCM meeting of ER on 20.09.10.	15th ERPC meeting on 28.09.10 & 16th ERPC Meeting on 18.12.10	As per New Sharing methodology of PoC
02	765kV S/C Gaya - Varanasi line along-with associated bays at Varanasi(GIS) Substation	21/04/16				
B	**Eastern Region Strengthening Scheme-III.**	**DOCO**	**Approved Cost**	**Standing Committee Reference**	**RPC Meeting Reference**	**Sharing of Charges**
01	2nos of 220kV line bays at 400/220kV Chaibasa S/s	03/03/16	Rs. 1512.08 Cr. (including IDC of Rs. 96.92 Cr.).	08/11/2008 at Bhubaneswar	Special(9th) ERPC meeting on 30/12/2008 & 10th ERPC meeting on 11/04/2009 at Port Blair	As per New Sharing methodology of PoC
C	**Eastern Region Strengthening Scheme-XII.**	**DOCO**	**Approved Cost**	**Standing Committee Reference**	**RPC Meeting Reference**	**Sharing of Charges**
01	Replacement of existing 100 MVA, 220/132 ICT with 1x160 MVA, 220/132 kV ICT at 220/132 kV Siliguri S/S along with necessary bay eqpt/ protection system at Sliguri S/S.	02/02/16	Rs.522.29 Cr.(including IDC of Rs.33.24 Cr.).	SCM meeting of ER on 27.08.13.	25th ERPC Meeting on 21.09.13	As per New Sharing methodology of PoC
02	Replacement of existing 3rd 100 MVA, 220/132 ICT with 1x160 MVA, 220/132 kV ICT at 220/132 kV Purnea Sub-station	29/02/16				
03	Replacement of existing 315 MVA, 400/220kV ICT I with 500 MVA, 400/220 kV ICT I at Pusauli Sub-station	03/04/16				
D	**Eastern Region Strengthening Scheme-XIII.**	**DOCO**	**Approved Cost**	**Standing Committee Reference**	**RPC Meeting Reference**	**Sharing of Charges**
01	Reconductoring of one ckt of Farakka - Malda 400kV D/C TL (ckt -I) with HTLS conductor and upgradation / replacement of assocaited bay equipment at Farakka & Malda	02/04/16	Rs.121.38 Cr.(including IDC of Rs.7.72 Cr.).	2nd 2013 SCM meeting of ER on 27.08.13.	25th ERPC Meeting on 21.09.13	As per New Sharing methodology of PoC
02	Reconductoring of one ckt of Farakka - Malda 400kV D/C TL (ckt -II) with HTLS conductor and upgradation / replacement of assocaited bay equipment at Farakka & Malda	02/04/16				
E	**Transmisison system for transfer of Power from generation projects in Sikkim to NR/WR(Part B)**	**DOCO**	**Approved Cost**	**Standing Committee Reference**	**RPC Meeting Reference**	**Sharing of Charges**
01	1 no 31.5 MVAR Bus Reactor (1nd) and associated bay at 220kV New Melli GIS S/S	21/03/16	Rs.1585.12 Cr.(including IDC of Rs.101.83 Cr.).	27th SCM meeting of NR on 30.05.09 & 29th SCM of WR on 16.09.09.	16th ERPC Meeting on 18.12.10	As per New Sharing methodology of PoC
02	400kV D/C (Quad) Kishangaj - Patna transmission line along-with assocaited bays at Kishanganj (GIS) including 2 no of 80 MVAR Switchable Line Reactor at Kishanganj (GIS) S/S	28/03/16				
F	**Transmisison system for transfer of Power from generation projects in Sikkim to NR/WR(Part A)**	**DOCO**	**Approved Cost**	**Standing Committee Reference**	**RPC Meeting Reference**	**Sharing of Charges**
01	LILO -I of Siliguri - Purnea 400kV D/C line at new pooling station at Kishanganj and associated bays at Kishanganj	18/03/16	Rs.250.03 Cr.(including IDC of Rs.19.03 Cr.).	27th SCM meeting of NR on 30.05.09 , 29th SCM of WR on 10.09.09 & SCM of ER on 20.09.10.	15th & 16th ERPC Meeting on 28.09.10 & 18.12.10 respectively	As per New Sharing methodology of PoC
02	LILO -II of Siliguri - Purnea 400kV D/C line at new pooling station at Kishanganj and associated bays at Kishanganj	18/03/16				
03	LILO -I of Siliguri - Dalkhola 220kV D/C line at new pooling station at Kishanganj and associated bays at Kishanganj	18/03/16				
04	LILO -II of Siliguri - Dalkhola 220kV D/C line at new pooling station at Kishanganj and associated bays at Kishanganj	18/03/16				
05	400kV 125 MVAR Bus Reactor - I with associated bays at Kishanganj (GIS) substation	18/03/16				
06	400/220kV 500 MVA ICT - II with associated bays at Kishanganj (GIS) substation	18/03/16				
G	**Augmentation of Trnasformation Capacity in Northern and Eastern Region**	**DOCO**	Approved Cost	Standing Committee Reference	RPC Meeting Reference	Sharing of Charges
01	Replacement of existing 100 MVA, 220/132kV ICT I with 160 MVA, 220/132 kV ICT at 220/132 kV Purnea Sub-station	03/04/16	Rs.30.80 Cr.(including IDC of Rs.1.25 Cr.).	SCM meeting of ER on 08.02.12.	18th ERPC Meeting on 01.07.11	As per New Sharing methodology of PoC
H	**ULDC Microwave link & Wide Band Communication Network**	**DOCO**	Approved Cost	Standing Committee Reference	RPC Meeting Reference	Sharing of Charges
01	6 nos. OPGW links under Central Sector assocaited with expansion of wideband communication network in Eastern Region		-	-	-	-
a)	Jamshedpur - Baripada	31/03/16				
b)	Binaguri - Kishanganj	31/03/16				
c)	Dalkhola - Kishanganj	31/03/16				
d)	Binaguri - Rangpo	31/03/16				
e)	Rangpo - Teesta	31/03/16				
f)	Maithon - Kahalgaon	31/03/16				
I	**Expansion/ Upgradation of SCADA/ EMS System of SLDCs of DVC, BSPTCL, JUSNL & Sikkim.**	**DOCO**	Approved Cost	Standing Committee Reference	RPC Meeting Reference	Sharing of Charges
01	Expansion/ Upgradation of SCADA/ EMS System of SLDCs of DVC Main Control Centre (Howrah)	08/01/16	-	-	-	-

a)	Installation of New EMS/SCADA platform equipped with Hardware & software at Main SLDC	31/03/16				
b)	Integration of 15nos RTU's with Main control centre on IEC 60870-5-101/104 protocol	31/03/16				
c)	Integration of of Main Control Centre DVC with Main and Backup ERLDC on ICCP protocol	31/03/16				
d)	Installation of Auxiliary Power Supply(APS) system for Main Control centre	31/03/16				
e)	Installation of new Video projection System for Main Control Centre	31/03/16				
f)	Installation of new Video conferencing System for Main Control Centre	31/03/16				

3rd Phase : 25 Locations

1	CHAIBASA(CHB)	PG
2	RANGPO(RGP)	PG
3	NEW MELLI (NML)	PG
4	SAGBARI(SGB)	SIKKIM
5	GYALSHING(GSH)	SIKKIM
6	NABINAGAR(NBN)	NTPC
7	IND-BARATH (IBR)	IPPR
8	TALCHER SOLAR (TLS)	NTPC
9	KUDRA(KUD)	BIHAR
10	RANCHI NEW(RNC)	PG
11	LAKHISARAI(LKS)	PG
12	LAKHISARAI(LKK)	BIHAR
13	JAMUI(JMU)	BIHAR
14	KISANGANJ (PG)	PG
15	BALIMELA(BLM)	GRIDCO
16	JLHEP(DANS ENERGY)	IPPR
17	CHAIBASA(CHA)	JUVNL
18	SADIEPALI(SDP)	GRIDCO
19	KATAPALLI(KTP)	GRIDCO
20	NEW DUBRI (DBR)	GRIDCO
21	NEW PUSAULI (NPS)	BIHAR
22	FORBISGANJ (FBS)	BIHAR
23	NALANDA(NLN)	BIHAR
24	DUMKA(DUM)	JUVNL
25	BANKA(BNK)	PG

In Future

1	PANDIABILPNB)	PG
2	CHANDWA(CHW)	JUVNL
3	KESINGA(KES)	GRIDCO
4	KEONJHAR(KEO)	GRIDCO
5	ATRI(ATR)	GRIDCO
6	PURI(PUR)	GRIDCO

S.No	ERLDC_ID	OLD MTR	NEW MTR	LOCATION
1	TL-32		NP-7961-A	TALCHER SOLAR(NTPC)
2	TL-33		NP-7626-A	TALCHER SOLAR(NTPC)
3	TL-34		NP-7962-A	TALCHER SOLAR(NTPC)
4	TL-35		NP-7628-A	TALCHER SOLAR(NTPC)
5	TL-37		NP-7627-A	TALCHER SOLAR(NTPC)
6	TL-38		NP-5968-A	TALCHER SOLAR(NTPC)
7	OR-15		NP-7991-A	BALIMELA(GRIDCO)
8	OR-16		NP-7992-A	BALIMELA(GRIDCO)
9	EN-10		NP-7847-A	RANCHI NEW(PG)
10	EN-11		NP-7876-A	RANCHI NEW(PG)
11	EN-12		NP-7849-A	RANCHI NEW(PG)
12	EN-13		NP-7866-A	RANCHI NEW(PG)
13	EN-14		NP-7865-A	RANCHI NEW(PG)
14	EN-19		NP-7875-A	RANCHI NEW(PG)
15	EN-46		NP-7432-A	LAKHISARAI(PG)
16	EN-27		NP-7433-A	LAKHISARAI(PG)
17	EN-20		NP-7958-A	RANGPO(PG)
18	EN-21		NP-7959-A	RANGPO(PG)
19	EN-22		NP-7933-A	RANGPO(PG)
20	EN-23		NP-7955-A	RANGPO(PG)
21	EN-24		NP-7956-A	RANGPO(PG)
22	EN-25		NP-7957-A	RANGPO(PG)
23	TL-31		NP-7909-A	TALCHER SOLAR(NTPC)
24	TL-30		NP-5979-A	TALCHER SOLAR(NTPC)
25	EN-29		NP-7950-A	ANGUL(PG)
26	EN-30		NP-7558-A	ANGUL(PG)
27	EN-31		NP-7987-A	ANGUL(PG)
28	EN-32		NP-7988-A	ANGUL(PG)
29	EN-37		NP-7889-A	LAKHISARAI(PG)
30	TL-37	NP-7627-A	NP-7946-A	TALCHER SOLAR(NTPC)
31	TL-40	NP-7618-A	NP-7945-A	TALCHER SOLAR(NTPC)
32	EN-33		NP-7922-A	RANGPO(PG)
33	EN-34		NP-7923-A	RANGPO(PG)
34	EN-35		NP-7924-A	RANGPO(PG)
35	EN-36		NP-7623-A	RANGPO(PG)
36	EN-39		NP-7622-A	RANGPO(PG)
37	TL-39	NP-7614-A	NP-7631-A	TALCHER SOLAR(NTPC)
38	TL-41	NP-7615-A	NP-7633-A	TALCHER SOLAR(NTPC)
39	EN-38		NP-7621-A	RANGPO(PG)
40	EN-43		NP-7629-A	ANGUL(PG)
41	EN-44		NP-7949-A	ANGUL(PG)
42	EN-40		NP-7906-A	SUNDERGARH(PG)
43	EN-41		NP-7634-A	SUNDERGARH(PG)
44	EN-42		NP-7638-A	SUNDERGARH(PG)
45	TL-36	NP-7632-A	NP-7630-A	TALCHER SOLAR(NTPC)
46	EN-32	NP-7988-A	NP-7908-A	ANGUL(PG)
47	EN-26		NP-7885-A	LAKHISARAI(PG)
48	EN-47		NP-7886-A	LAKHISARAI(PG)
49	BI-50		NP-7869-A	KUDRA(BSPHCL)
50	EN-50		NP-7429-A	LAKHISARAI(PG)
51	EN-50		NP-7429-A	LAKHISARAI(PG)
52	EN-51		NP-7887-A	LAKHISARAI(PG)
53	EN-52		NP-7430-A	LAKHISARAI(PG)
54	BI-26		NP-8697-A	LAKHISARAI(BSPHCL)
55	BI-27		NP-8698-A	JAMUI(BSPHCL)
56	IB-01		NP-8792-A	IBEUL
57	IB-02		NP-8793-A	IBEUL
58	IB-03		NP-8795-A	IBEUL
59	IB-04		NP-8794-A	IBEUL
60	IB-05		NP-8783-A	IBEUL
61	IB-06		NP-8782-A	IBEUL
62	IB-07		NP-8784-A	IBEUL
63	IB-08		NP-8796-A	IBEUL
64	EN-54		NP-7619-A	RANGPO(PG)
65	EN-55		NP-7620-A	RANGPO(PG)
66	EN-57		NP-7907-A	SUNDERGARH(PG)
67	NB-01		NP-8700-A	NABINAGAR
68	NB-02		NP-8701-A	NABINAGAR
69	EN-58		NP-8678-A	CHAIBASA(PG)
70	EN-59		NP-8710-A	RANGPO(PG)
71	EN-60		NP-8711-A	RANGPO(PG)
72	WB-23		LT-0194-A	SAGARDIGHI(WBSETCL)
73	WB-24		LT-0191-A	SAGARDIGHI(WBSETCL)
74	NB-05		NP-8662-A	NABINAGAR
75	WB-25		NP-8724-A	SAGARDIGHI(WBSETCL)
76	WB-26		NP-8725-A	SAGARDIGHI(WBSETCL)
77	WB-27		NP-8723-A	SAGARDIGHI(WBSETCL)
78	WB-28		NP-8722-A	SAGARDIGHI(WBSETCL)
79	EN-68		NP-8721-A	BERHAMPORE(PG)
80	EN-69		NP-8726-A	BERHAMPORE(PG)
81	EN-63		NP-8780-A	ANGUL(PG)
82	EN-64		NP-8781-A	ANGUL(PG)
83	EN-65		NP-8785-A	ANGUL(PG)
84	EN-66		NP-8786-A	ANGUL(PG)
85	EN-67		NP-8637-A	CHAIBASA(PG)
86	EN-77		NP-8778-A	ANGUL(PG)
87	EN-78		NP-8779-A	ANGUL(PG)
88	EN-79		NP-7636-A	SUNDERGARH(PG)
89	EN-80		NP-8714-A	RANGPO(PG)

90	EN-81		NP-8715-A	RANGPO(PG)
91	EN-82		NP-8777-A	ANGUL(PG)
92	SM-05		NP-8797-A	SAGBARI(SIKKIM)
93	SM-06		NP-8798-A	SAGBARI(SIKKIM)
94	SM-07		NP-8730-A	GYALSHING(SIKKIM)
95	EN-83		NP-8673-A	BANKA(PG)
96	EN-84		NP-8675-A	BANKA(PG)
97	AP-03	NP-7438-A	NP-8642-A	APNRL
98	EN-85		NP-8647-A	NEW MELLI(PG)
99	EN-86		NP-8640-A	NEW MELLI(PG)
100	RG-12		NP-8734-A	RANGIT(NHPC)
101	RG-13		NP-8733-A	RANGIT(NHPC)
102	RG-14		NP-8732-A	RANGIT(NHPC)
103	RG-15		NP-8736-A	RANGIT(NHPC)
104	RG-16		NP-8735-A	RANGIT(NHPC)
105	BI-28		NP-8653-A	SULTANGANJ(BSPHCL)
106	BI-29		NP-8672-A	SULTANGANJ(BSPHCL)
107	EP-18	NP-7471-A	NP-8660-A	GAYA(PG)
108	EN-87		NP-8727-A	MAITHON(PG)
109	EN-88		NP-8739-A	MAITHON(PG)
110	JS-09		NP-8695-A	DUMKA(JUVNL)
111	JS-10		NP-8774-A	DUMKA(JUVNL)
112	OR-22		NP-7916-A	NEW DUBURI(GRIDCO)
113	EN-89		NP-7887-A	LAKHISARAI(PG)
114	EN-90		NP-7430-A	LAKHISARAI(PG)
115	EN-91		NP-8755-A	RANCHI NEW(PG)
116	EN-92		NP-8754-A	RANCHI NEW(PG)
117	BI-32		NP-8664-A	PUSAULI NEW(BSPHCL)
118	BI-33		NP-8665-A	PUSAULI NEW(BSPHCL)
119	EN-93		NP-8742-A	ARA(PG)
120	EN-94		NP-8743-A	ARA(PG)
121	JL-01		NP-8737-A	JORETHANG(JLHEP)
122	JL-02		NP-8766-A	JORETHANG(JLHEP)
123	JL-03		NP-8762-A	JORETHANG(JLHEP)
124	JL-04		NP-8763-A	JORETHANG(JLHEP)
125	JL-05		NP-8764-A	JORETHANG(JLHEP)
126	JL-06		NP-8765-A	JORETHANG(JLHEP)
127	EN-95		NP-7635-A	SUNDERGARH(PG)
128	BI-30		NP-8670-A	LAKHISARAI(BSPTCL)
129	BI-31		NP-8671-A	LAKHISARAI(BSPTCL)
130	EN-51		NP-7888-A	LAKHISARAI(PG)
131	EN-52		NP-7431-A	LAKHISARAI(PG)
132	AP-02	NP-7462-A	NP-8643-A	APNRL
133	BI-26		NP-8669-A	JAMUI(BSPHCL)
134	BI-27		NP-8668-A	JAMUI(BSPHCL)
135	EN-97		NP-8868-A	CHAIBASA(PG)
136	EN-98		NP-8869-A	CHAIBASA(PG)
137	JS-11		NP-8865-A	CHAIBASA(JUVNL)
138	JS-12		NP-8866-A	CHAIBASA(JUVNL)
139			NP-7940-A	RANGPO(PG)
140			NP-7941-A	RANGPO(PG)
141	EN-99		NP-8753-A	RANCHI NEW(PG)
142	JS-13		NP-8867-A	CHAIBASA(JUVNL)
143	ES-03		NP-8694-A	BANKA(PG)
144	ES-04		NP-8696-A	BANKA(PG)
145	ES-02		NP-8860-A	ARA(PG)
146	ES-01		NP-8874-A	MUZAFFARPUR(PG)
147	ES-06		NP-8788-A	ANGUL(PG)
148	ES-07		NP-8871-A	MUZAFFARPUR(PG)
149	ES-08		NP-8873-A	MUZAFFARPUR(PG)
150	ES-09		NP-8872-A	MUZAFFARPUR(PG)
151	BI-34		NP-8883-A	FORBESGANJ(BSPTCL)
152	BI-35		NP-8884-A	FORBESGANJ(BSPTCL)
153	ES-10		NP-8655-A	PATNA(PG)
154	ES-11		NP-8887-A	KISHANGANJ(PG)
155	ES-12		NP-8885-A	KISHANGANJ(PG)
156	ES-13		NP-8856-A	KISHANGANJ(PG)
157	ES-14		NP-8886-A	KISHANGANJ(PG)
158	ES-15		NP-8858-A	KISHANGANJ(PG)
159	ES-16		NP-8889-A	KISHANGANJ(PG)
160	ES-17		NP-8859-A	KISHANGANJ(PG)
161	ES-18		NP-8855-A	KISHANGANJ(PG)
162	ES-19		NP-8880-A	KISHANGANJ(PG)
163	ES-20		NP-8888-A	KISHANGANJ(PG)
164	ES-21		NP-8857-A	KISHANGANJ(PG)
165	ES-22		NP-8790-A	BOLANGIR(PG)
166	ES-23		NP-8789-A	BOLANGIR(PG)
167	OR-17		NP-7561-A	KATAPALI(GRIDCO)
168	OR-18		NP-7944-A	SADEIPALI(GRIDCO)
169	ES-24		NP-8712-A	RANGPO(PG)
170	ES-25		NP-8713-A	RANGPO(PG)
171	ES-26		NP-8659-A	GAYA(PG)
172	NB-07		NP-8892-A	NABINAGAR
173	NB-11		NP-8891-A	NABINAGAR
174	ES-27		NP-8775-A	MALDA(PG)
175	ES-28		NP-8776-A	MALDA(PG)
176	OR-20	NP-5983-A	NP-7498-A	MENDHASAL(GRIDCO)
177	EP-19	NP-7470-A	NP-8658-A	GAYA(PG)
178	ES-05	NP-8787-A	NP-7995-A	ANGUL(PG)
179	EM-49		NP-7880-A	CHANDIL(JUVNL)