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EASTERN REGIONAL POWER COMMITTEE
14, GOLF CLUB ROAD, TOLLYGUNGE
KOLKATA-700 033

NO. ERPC/TCC & COMMITTEE/14/2010/ 6277-6330

Date: 02.11.2010

To :

- 1. Members of Eastern Regional Power Committee.**
- 2. Members of TCC.**
- 3. Special Invitees.**

Subject: Minutes of 15th TCC & 15th ERPC Meetings.

Sir,

I am directed to enclose a copy of the minutes of 15th TCC and the 15th ERPC meetings held on 27th & 28th September'10 respectively at Pelling (Sikkim).

Yours faithfully,

Sd/-

(A.K. Bandyopadhyay)
Member Secretary I/C

Encl: As above

ERPC :: Kolkata

Distribution List 1 : ERPC Members

1. The Chairperson, ERPC & CMD, WBSEDCL & WBSETCL, Vidyut Bhavan, 7th Floor, Block-DJ, Sector-II, Bidhannagar, Kolkata-700091.
2. The Chairman, Bihar State Electricity Board, Vidyut Bhavan , Bailey Road, Patna-800021.
3. The Chairman, Jharkhand State Electricity Board, Engineering Building, HEC, Dhurva, Ranchi-834004.
4. The Chairman-cum-Managing Director, Orissa Power Transmission Corporation Ltd., Janpath, Bhubaneswar - 751022.
5. The Chairman, Damodar Valley Corporation, DVC Towers, VIP Road, Kolkata -700054.
6. Principal Chief Engineer-cum-Secretary, Energy & Power Department, Govt. of Sikkim, Gangtok – 737101, Sikkim.
7. The Member (GO&D), Central Electricity Authority, Sewa Bhawan , R.K. Puram, New Delhi-110066.
8. The Director (Commercial), NTPC Ltd., Core-7, SCOPE Complex, 7, Institutional Area, Lodhi Road, New Delhi -110003.
9. The Director (Finance), NHPC Ltd., NHPC Office Complex, Sector-33, Faridabad, Haryana-121003.
10. The Director (Operations), Power Grid Corporation of India Ltd., Saudamini, Plot No. 2, Sector-29Gurgaon-122001.
11. The Managing Director, West Bengal Power Development Corporation Ltd., Bidyut Unnayan Bhavan, 3/C, Block LA , Sector-III, Bidhannagar, Kolkata-700098.
12. The Managing Director, CESC Ltd., CESC House, 1 Chowringhee Square, Kolkata-700001.
13. The Managing Director, Durgapur Projects Ltd., 1 Shakespeare Sarani, Kolkata-700071
14. The General Manager, ERLDC, 14 Golf Club Road, Tollygunge, Kolkata – 700033.
15. The Managing Director, OPGC Ltd., Zone-A, 7th Floor, Fortune Towers, Chandrasekharpur, Bhubaneswar-751023.
16. The Director (Operation.), OHPC Ltd., Orissa State Police Housing & Welfare Corporation Bldg. Vanivihar, Janpath, Bhubaneswar- 751022
17. The Executive Director, National Load Dispatch Center, B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi-110016.
18. The Managing Director, Tenughat Vidyut Nigam Ltd., Hinoo, Doranda, Ranchi – 834002
19. The Executive Director (Operations), Tata Power Company Ltd. 24, Homy Mody Street , Fort, Mumbai-400001.
20. The Managing Director, BSHPC Ltd., Sone Bhawan, Birchand Patel Marg, Patna-800001.
21. The Director (Operations), PTC India Ltd., 2nd floor, NBCC Tower, 15 Bhikaji Cama Place, New Delhi-110066.
22. The Chairman-cum-Managing Director, GRIDCO Ltd., Janpath, Bhubaneswar-751022.
23. The Executive Director & CEO, Powerlinks Transmission Ltd., DLF Tower-A, District Centre- Jasola, New Delhi-110025.

Distribution List 2 : TCC Members

1. The Chairperson, TCC & Director (R&T), West Bengal State Electricity Distribution Co. Ltd., Vidyut Bhavan, 7th Floor, Block-DJ, Sector-II, Bidhannagar, Kolkata-700091.
2. The Director (Transmission), West Bengal State Electricity Transmission Co. Ltd., Vidyut Bhavan, 7th Floor, Block-DJ, Sector-II, Bidhannagar, Kolkata-700091.
3. The Member (Transmission), Bihar State Electricity Board, Vidyut Bhavan, Bailey Road, Patna-800021.
4. The Member (Technical), Jharkhand State Electricity Board, Engineering Building, HEC, Dhurwa, Ranchi-834004.
5. The Director (Commercial), Damodar Valley Corporation, DVC Tower, VIP Road, Kolkata-700054.
6. The Chief General Manager (O&M), Orissa Power Transmission Corporation Ltd, Janpath, Bhubaneswar-751022.
7. The Chief Engineer-III, Energy & Power Department., Govt. of Sikkim, Kazi Road, Gangtok-737101.
8. The Chief Engineer (GM), CEA, Sewa Bhawan, R.K. Puram , New Delhi-110066.
9. The Regional Executive Director (ER-I), NTPC Ltd., 2nd floor, Lok Nayak Jai Prakash Bhawan, Dak Bunglow Chowk, Patna-800001.
10. The Executive Director (O&M), NHPC Ltd., NHPC Office Complex, Sector-33, Faridabad-121003, Haryana.
11. The Executive Director (ER-I), Power Grid Corporation of India Ltd, Alankar Place, Boring Road, Patna-800001.
12. The Executive Director (ER-II), Power Grid Corporation of India Ltd, J-1-15, Block-EP, Sector-V, Salt Lake City, Kolkata-700091.
13. The Director (FM & HR), WBPDC, Bidyut Unnayan Bhavan, 3C, Block-LA, Sector-III, Bidhannagar, Kolkata-700098.
14. The Executive Director (Corporate Services), CESC Ltd, CESC House, 1 Chowringhee Square, Kolkata-700001.
15. The Director (Operation), Durgapur Projects Ltd., 1 Shakespeare Sarani, Kolkata-700071.
16. The Director (Operation), Orissa Power Generation Corporation Ltd, Zone-A, 7th floor, Fortune Towers, Chandrasekharapur, Bhubaneswar-751023.
17. The Chief General Manager (Elec.), Corporate Office, Orissa Hydro Power Corporation Ltd, Orissa State Police Housing & Welfare Corporation Building, Vanivihar Chowk, Janpath, Bhubaneswar-751022.
18. The General Manager, Tenughat TPS, Lalpania, Dist- Bokaro, Jharkhand-829149.
19. The Director (Commercial), GRIDCO Ltd., Janpath, Bhubaneswar-751022.
20. The Executive Vice President (Marketing/Commercial), PTC India Ltd., NBCC Tower, 15 Bhikaji Cama Place, New Delhi-110066.
21. The General Manager (P&O), Powerlinks Transmission Ltd., 10th Floor, DLF Tower-A, District Centre- Jasola, New Delhi-110025.

Distribution List 3 : Special Invitees

1. Member (E & C), CEA, Sewa Bhawan, R.K. Puram, New Delhi-110066.
2. Chief Engineer (SP & PA), CEA, Sewa Bhawan, R.K. Puram, New Delhi-110066.
3. Member Secretary, NERPC, MSHFCS Building, Nongrim Hills, Shillong-793003
4. Member Secretary, NRPC, 18A, SJSS Marg, Katwaria Sarai ,New Delhi-110016.
5. Member Secretary, SRPC, 29, Race Course Cross Road, Bangalore-560009.
6. Member Secretary, WRPC, MIDC Area, Mumbai-400093.
7. Chief General Manager (S&M), Coal India Ltd., 16 Park Street, Kolkata-700016.
8. Joint Director (RM), Railway Board, Eastern Railway House, 17 N.S. Road, Kolkata-700001.
9. Director, Adhunik Power & Natural Resources Ltd., Crescent Tower, 3rd Floor, 220 AJC Bose Road, Kolkata-700020.
10. CEO, Maithon Power Ltd., C-43, Sector-62, NOIDA-201307, Uttar Pradesh.

EASTERN REGIONAL POWER COMMITTEE

MINUTES OF THE 15TH MEETING OF EASTERN REGIONAL POWER COMMITTEE

Date: 28.09.2010

Venue : Norbu Gang Resort, Pelling

Chaired by: M.K. De, Chairman & Managing Director, WBSEDCL & WBSETCL.

The list of participants is given at Annexure-A.

Host : Energy & Power department, Govt. of Sikkim.

Shri Pema Wangchen, Principal Chief Engineer-cum-Secretary, Energy & Power Department, Govt. of Sikkim welcomed Shri M.K. De, Chairperson, ERPC and CMD, WBSEDCL & WBSETCL, other distinguished members of ERPC, Special Invitees, TCC members and other participants on behalf of Energy & Power Department , Govt. of Sikkim. He said “ the slogan ‘Athihi Devo Bhavo’ has struck a deep chord in the ethos and culture of Sikkimese society and everytime it is repeated, it resonates in perfect harmony in the fabric of their culture. Pelling is located against the backdrop of mighty Himalayas and the Kanchenjanga mountain has a deep religious significance and is considered to be protective deity of the State of Sikkim”. He stated that the total potential of hydro generation of Sikkim is about 8000 MW, out of which projects totalling 2987 MW is expected to commissioned by the year 2015 . He wished for comfortable and pleasant stay of the guests and hoped that all issues would be resolved with true spirit of cooperation and to the satisfaction of all constituent members.

Shri A.K. Rampal, Member Secretary, ERPC welcomed Shri M.K. De, Chairperson, ERPC and CMD, WBSEDCL & WBSETCL, Shri Pema Wangchen, Principal Chief Engineer-cum-Secretary, Energy & Power Department-Govt. of Sikkim, Dr. J.P. Singh, Member (E&C)-CEA, Mr. Thinley Dorji , Executive Director, Druk Green Power Corporation Ltd., Mr. Chenchho Tshering, General Manager , Bhutan Power Corporation Ltd., Shri P.K. Rai, Chairman-BSEB, Shri Hemant Sharma, Managing Director-OPTCL & GRIDCO, Dr. Krishna Gupta, Managing Director-WBPDCL, Shri R.N. Nayak, Director(Operations)-Power Grid, Shri P. Pentayya, General Manager-ERLDC, Shri B.K. Jain, Member Secretary-NERPC, Shri H. Vaidya, Chief General Manager (S&M), Coal India Ltd., Shri Praveen Chorghade, CEO, Maithon Power Ltd., Shri M.K. Roy, Advisor (Commercial), Adhunik Power, exteemed members of TCC and other participants. He thanked Shri Pema Wangchen, Principal Chief Engineer-cum-Secretary, Energy & Power Department-Govt. of Sikkim for making excellent arrangement for the meeting at this remote yet beautiful place of Pelling. He drew the attention of the members on the issues of allocation vis-à-vis utilisation of coal at Kahalgaon STPS. He also apprised the members on few important issues on transmission planning of Eastern Region.

Shri M.K. De, Chairperson, ERPC and CMD, WBSEDCL & WBSETCL welcomed ERPC members, Special Invitees, TCC members and other participants. He thanked Shri Pema Wangchen, Principal Chief Engineer-cum-Secretary, Energy & Power Department-Govt. of Sikkim for excellent arrangement for the meeting. He appreciated the efforts of Shri Wangchen and his team for making it possible to host the meeting at this far away place like Pelling in an excellent manner. He briefly mentioned about the grid

performance during the period April'10 to August'10 and highlighted the following points in his address :

- ❖ Power continued to flow from WR to ER. During April to August'10 the total import from WR to ER was 952 MU, whereas during this period the energy scheduled from ISGS of ER to WR was 800 MU. It is important to know whether this kind power flow is acceptable from system operator's point of view.
- ❖ W.e.f. May,2010 the IEGC stipulated grid frequency band was narrowed down to 49.5 to 50.2 Hz. New UI regulations have also been made effective from May,2010. These measures were undertaken by CERC to improve grid performance and to make the constituents commercially sensitive. The effect of pruning of frequency band and introduction of new UI regulations may be deliberated in OCC & Commercial Committee meeting and the findings brought to the notice of TCC and ERPC.
- ❖ Meeting of the Standing Committee on Transmission Planning of ER has taken place on 20th September,2010. The previous meeting of the Standing Committee was held 14th September,2009. CEA has already expressed the need to hold this meeting more frequently.
- ❖ Next ERPC meeting onwards, generation and transmission plan in Eastern Region upto 2011-12 and beyond be included as an agenda item. This will facilitate to have a snap shot on the generation and transmission plan. A good number of IPPs will be operational within the region in few years time.
- ❖ The Secretariat may increase the frequency of holding workshops, seminars on contemporary topics and issues on regular intervals to acquaint the constituents with the latest developments in power sector.

PART A

ITEM NO.A0: The Committee placed on record the contribution of Shri C.J. Venugopal, IAS., the then CMD-OPTCL & GRIDCO, Shri R.K. Sharma, the then Chairman-BSEB and Shri N.N. Pandey, IAS, the then Chairman-JSEB as members of ERPC. In their association a number of important decisions were taken. Members also welcomed the new incumbents Shri Hemant Sharma, IAS, Managing Director, OPTCL & GRIDCO and Shri P.K. Rai, Chairman, BSEB who were present in the meeting.

ITEM NO.A1: CONFIRMATION OF THE MINUTES OF THE 14TH ERPC MEETING HELD ON 11.06.2010 AT MANALI

The minutes of the 14th ERPC meeting held on 11th June,2010 at Manali were circulated vide letter no.ERPC/ TCC & Committee/14/2010/2038-2088 dated 14.07.2010.

So far, no comments have been received from constituent members on the minutes of the meeting.

Members may confirm the minutes of 14th ERPC meeting.

Deliberation in the ERPC meeting

Members confirmed the minutes of 14th ERPC meeting.

PART B : FOLLOW UP ACTION ON THE DECISIONS IN PREVIOUS ERPC MEETINGS

ITEM NO.B1: RENOVATION OF ERPC CONFERENCE HALL AND ERPC STAFF QUARTERS (RESIDENTIAL COMPLEX)
(Item No.B2 & E2 of Minutes of 14th ERPC Meeting)

In the 13th ERPC meeting held on 26th March,2010 members approved the formation of a Committee.

A Committee comprising of Chairman, BSEB, Chairman cum Managing Director, GRIDCO, Chairman, JSEB, PCE-cum-Secretary, Power Department, Govt of Sikkim and Chairman & Managing Director, WBSEDCL was formed vide notification dated 14th May,2010.

The Committee held its 1st meeting on 10th June,2010 at Manali and nominated Shri M.K. De, Chairman & Managing Director, WBSEDCL as Chairperson of the Committee.

In the 14th ERPC meeting held on 11th June,2010 Member Secretary, ERPC sought cooperation from member organisation to render its expertise in preparing schedule of work with cost estimate. In response, POWERGRID offered to render services of its civil engineer.

Subsequently, civil engineer from POWERGRID visited the ERPC Secretariat.

The schedule of work and cost estimate will be placed before the Committee on submission of the report by POWERGRID.

This is for information of members.

Deliberation in the ERPC meeting

Members noted.

ITEM NO. B2: STUDY VISIT TO NORWAY BY ERPC DELEGATES
(Item No. E1 of Minutes of 14th ERPC Meeting)

Background :

11th November, 2009: PTC India Ltd. proposed study visit to Norway by ERPC delegates, similar to the study visit arranged by them for NERPC delegates in June and October'09.

4th December,2009: ERPC in its 12th meeting agreed in principle to the proposal of PTC and authorized Member Secretary, ERPC to firm up the matter with PTC.

26th March,2010: In the 12th ERPC meeting PTC was requested to submit a proposal for the Study Visit.

4th May,2010: PTC submitted a proposal indicating expenditure of Rs.5 Lakh per delegate.

11th May,2010: Member Secretary, ERPC requested all constituent members to send nominations. In response, nominations received from WBSEDCL & NLDC.

11th June,2010: ERPC in its 14th meeting desired Member Secretary, ERPC (i) to explore the possibility of getting allocated the funds for this study visit out of Power System Development Fund (PSDF), (ii) to discuss with PTC for exploring the reduction in cost including pursuing PTC to bear the expenses of its officer and (iii) to seek nominations from member organisations.

29th July,2010: Member Secretary, ERPC requested member organisations to send nominations. In response, CESC sent its nomination.

5th August,2010: Member Secretary, ERPC submitted the proposal for funding the Study Visit out of PSDF to the Joint Chief (Engg.) & Convenor, CERC.

10th August,2010: PTC conveyed that it may not be possible to reduce the cost further or bear necessary expenditure of the PTC official.

So far, nominations from WBSEDCL, NLDC & CESC have been received. Nominations from the other member organisations are not forthcoming.

CERC has not agreed for funding out of PSDF.

Under the above background, Members may discuss and decide further course of action.

Deliberation in the ERPC meeting

PTC informed that CERC is in the process of considering a proposal for capacity building programme for NERPC members out of fund available in Reactive Energy Account of NER.

Members decided to wait for the decision of CERC on utilisation of the fund available in Reactive Energy Account for capacity building programme and discuss the matter in the next ERPC meeting.

ITEM NO.B3: FOLLOW UP ACTION DISCUSSED BY TCC ON THE DECISIONS TAKEN IN PREVIOUS TCC/ERPC MEETINGS

The follow up of the decisions taken in previous TCC/ERPC meetings related to operational, commercial and technical aspects were discussed by TCC and are placed below:

ITEM NO. B3.1: CONSTITUTION OF A COMMITTEE TO LOOK INTO ISSUES PERTAINING TO GENERATION FROM TALCHER STPS STAGE - I & II (Item no.B 3.1 of MoM of 14th ERPC meeting)

A Committee comprising of Director (Commercial), GRIDCO, Member Secretary, ERPC, Executive Director (TSTPS), NTPC and one officer of Talcher STPS was constituted to look into issue of coal diversion from Talcher Stage-I to Stage-II.

After visit of Talcher STPS by the Committee, a draft report was circulated among the Committee members. GRIDCO had sent its comment on the report. In the 54th OCC meeting held on 13.09.10, it was given to understand that the final report is being finalized.

Deliberation in the TCC meeting

Member Secretary, ERPC stated that the Committee had taken care of Orissa's apprehension regarding diversion of coal. NTPC assured that generation performance of both Stages of Talcher STPS would be at par from October, 2010. The Committee informed that the report had been finalized and would be shortly circulated to all concerned.

Deliberation in the ERPC meeting

Members noted.

ITEM NO. B3.2: SYNCHROPHASOR TECHNOLOGY IN EASTERN REGION

(Item no.C13 of MoM of 14th ERPC meeting)

ERLDC vide its letter had proposed implementation of synchrophasor technology in ER. The proposal consisted of installation of PMUs at 25 locations in Phase – I of its implementation, the expected expenditure was estimated as `965 lakh. In phase – II of the project, the proposal included more numbers PMUs installation along with implementation of various application packages such as State Estimation, adaptive protection schemes, etc. with an estimated expenditure of `900 lakh. Thus, the total expenditure of the project was estimated as `1865 lakh.

During the 2nd meeting of the Task Force, the issue was deliberated for consideration wherein it was suggested that a smaller pilot project in ER to be taken up to gain experience and then opt for full-scale implementation. In this context, it is to mention that a smaller pilot project has already been taken up and is functional in NR. The experience of the pilot project is already being shared among all Regional Load Despatch Centres.

Based on the views expressed during the 2nd Task Force meeting, a detailed study was further carried out to find out optimum placement of PMUs in order to have a better observability of the entire system based on which a technical paper titled "A simple and efficient approach for optimal placement of PMUs – A case study for Eastern Regional Grid" has been prepared and also submitted for the National Power System Conference 2010.

The pilot project to be taken up in ER should be beyond the scope of that taken up in NR in order to gain further experience rather than a repeat exercise. It is also required to gain experience through ER – pilot project on the issues of data handling, visualization interfacing with SCADA /EMS and some minor applications. Such extended scope of the pilot project requiring more than 10 Nos. PMUs and to be determined on a technical basis and minimum number of PMUs become a critical mass. Additional number of PMUs would only lead to incremental cost. Even though 28 Nos. of PMUs form basic requirement, 25 Nos. PMUs have been proposed based on the communication infrastructure without this critical mass (25 Nos. of PMUs), it would not be possible to study some minor applications and we should not miss out plucking the low hanging fruits. Precisely due to this reason, WRLDC had also planned for 30 Nos. PMUs with minor applications in the scope of the project still these projects (that of WR and ER) can be viewed as pilot projects with extended scope as compared to the NR project. It may not be prudent to take up similar pilot projects like NR project without entichment of experience and value addition. Some minor

applications and data handling interfaces need to be tried out in the pilot projects stated to be taken up by the other regions

The proposal along the cost estimate was duly approved by the ERPC during its deliberation at 14th ERPC meeting held on 11.06.2010. It is once again proposed that ERLDC may go ahead with Task force of the Commission for consideration of the original proposal of 25 number of PMU procurement.

Deliberation in the TCC meeting

TCC recommended to ERPC for approval of ERLDC proposal for implementation of synchrophasor technology in Eastern Region for 25 nos. PMUs at an estimated cost of Rs.1865 lakh utilizing PSDF.

Deliberation in the ERPC meeting

ERLDC appraised that PSDF has approved 10 locations for installing PMUs. It felt that 10 numbers are not sufficient for optimum observability of ER system. Atleast 25 sites need to be identified for PMUs. Its estimated cost shall be Rs. 1865 lakh. PSDF will be required to approach again.

ERPC concurred with the views of ERLDC.

ITEM NO. B3.3: CAPACITY BUILDING PROGRAMMES

(Item no.4..5 of MoM of 13th ERPC meeting)

The 13th ERPC meeting held on 26.03.2010 had approved the training programmes to be imparted by M/s. AREVA. While various application functions available at ERLDC such as SCADA, EMS, Despatch Training Simulator are being utilized at ERLDC, the objective of this training through OEM was essentially to impart training for utilization of such facilities at the state level Control Centres. Following are the proposed training programmes as suggested by ER constituents and approved by ERPC along with estimated expenditure as offered by M/s. AREVA Besides the above programmes, ERPC also approved workshops on Transmission pricing, power exchange and Free Governor Mode of Operation were also approved.

Sl. No.	Project Description	Estimated Expenditure (in lakh)	Fund Source*	Approval Reference
1.	Training on SCADA/EMS by M/s. AREVA			
1a)	EMS application training – 2 batches	13.648	ER Reactive Pool Account	13 th ERPC meeting held on 26.03.2010
1b)	SCADA DB & Display training – 3 batches	18.612		
1c)	Despatcher’s training – 2 batches.	4.100		
Sub Total		36.36 lakh (Excluding Taxes & Duties)		

Sl. No.	Project Description	Estimated Expenditure (in lakh)	Fund Source*	Approval Reference
2.	Workshop on Transmission pricing, Power Exchange FGMO	20.00	ER Reactive Pool Account.	13 th ERPC meeting held on 26.03.2010
	Total	56.36 lakh		

While the aforesaid training programmes were duly approved at the ERPC forum. The issue need to be deliberated during the 3rd meeting of the Task Force for approval. It is, therefore, requested that TCC may approve taking up this agenda again with the Task force for final approval.

Deliberation in the TCC meeting

TCC recommended to ERPC for approval of the proposal of ERLDC regarding capacity building programme at a total cost of Rs. 56.36 lakh utilizing PSDF.

Deliberation in the ERPC meeting

As recommended by TCC, ERPC approved the proposal of ERLDC regarding capacity building programme at a total cost of Rs.56.36 lakh utilizing PSDF. ERPC authorised ERLDC to take further necessary action in this regard.

ITEM NO. B3.4: 220 KV AND 132 KV TAKE OFFS FROM NEW SUB-STATIONS COMING UP UNDER ERSS-III (Item no.C15 of MoM of 14th ERPC meeting)

Following new sub-stations are being established by POWERGRID under Eastern Region Strengthening Scheme-III, for which respective constituent may identify and implement the take-off link:

New Sub-Stations	No. of line bays for take-off
400/132 KV S/s at Lakhisarai by LILO of Kahalgaon-Biharshariff 400 KV D/C (1 st line)	4 nos. 132 KV line bays
400/132 KV S/s at Banka by LILO of Kahalgaon-Biharshariff D/C (2 nd line)	4 nos. 132 KV line bays
400/220 KV S/s at Daltonganj with Sasaram-Daltonganj 400 KV D/C	4 nos. 220 KV line bays
400/220 KV S/S at Chaibasa by LILO of Jamshedpur-Rourkela 400 KV D/C	4 nos. 220 KV line bays
400/220 KV S/S at Keonjhar by LILO of Rengali-Baripada 400 KV S/C	4 nos. 220 KV line bays
400/220 KV S/S at Uttara with Uttara-Mendhasal 400 KV D/C	6 nos. 220 KV line bays
400/220 KV S/S at Bolangir by LILO of Meramundali-Jeypore 400 KV S/C	4 nos. 220 KV line bays

BSEB, JSEB & OPTCL may please confirm the present status of construction of take off links from their respective proposed sub-stations.

Deliberation in the TCC meeting

BSEB submitted the following take offs:

- ✓ 400/132 kV substation at Lakhisarai by LILO of Kahalgaon-Biharshariff 400 kV D/c (1st line)
- ✓ 400/132 kV substation at Banka by LILO of Kahalgaon-Biharshariff 400 kV D/c (2nd line)

OPTCL also submitted the take off as below:

- ✓ 2 nos 220 kV bays for proposed Khuntuni 400/220 kV S/S near Dhenkanal.
- ✓ 2 nos bays for proposed 220/132 kV Nuagaon S/S near Keonjhar
- ✓ 2 nos 220 kV bays for 220/132 kV Karadgadia S/S near Khurda
- ✓ 2 nos 220 kV bays for proposed 220/132 kV S/S at Puri
- ✓ 2 nos 220 kV bays for 220/132 kV Sadeipalli S/S(Near Bolangir S/S)

Deliberation in the ERPC meeting

BSEB, JSEB & OPTCL explained their status and confirmed that downstream facilities are matching with upstream facilities. This issue will not be pursued in future meeting (s).

ITEM NO.B3.5: PROCUREMENT OF SPARE TRANSFORMERS TO MEET THE NEED OF MEMBER STATES (Item no.C8 of MoM of 14th ERPC meeting)

In the 13th ERPC meeting held on 26.03.2010, ERPC approved the procurement of 2 nos. of 315 MVA, 400/220 kV auto transformer (one to be kept at Biharshariff and one at Durgapur S/S) and 1 no. 50 MVAR shunt reactor (this was subsequently changed to 80 MVAR in the 14th ERPC meeting) (to be kept at Rourkela S/S) with the following conditions :

- a) These elements would be used as a part of disaster management
- b) These would be used exclusively for the scheduled network in the Eastern Region;
- c) These elements would be kept in charged condition.

Further, in the 14th ERPC meeting held on 11.06.2010, ERPC approved procurement of the followings :

- 2 nos. 315 MVA 400/220 kV ICTs
- 1 no. 160 MVA 220/132 kV ICT
- 1 no. 50 MVA 220/132 kV ICT
- 1 no. 50 MVA 132/66 kV ICT

The transformers will be kept in charged condition and location will be decided during “lead time” and shall be exclusively used by ER beneficiaries.

They will form a part of CTS of Eastern Region until any one is requisitioned by any beneficiary, thereafter that element will form a part of STS of that beneficiary.

Powergrid may furnish the latest status of procurement of the above transmission elements.

Deliberation in the TCC meeting

WBSETCL proposed that instead of one no of 50 MVA 220/132 kV ICT , one no 160 MVA 220/132 kV ICT should be procured as spare transformer as the 50 MVA transformer finalized in the 14th ERPC meeting has very limited utility.

TCC recommended to ERPC to consider referring the issue to OCC for a fresh look into the requirements.

Deliberation in the ERPC meeting

Accepting the recommendation of TCC, it was decided that

- i) Number and rating (s) shall be finalised by ERPC Secretariat in consultation with Powergrid and ERLDC. Its decision shall be ratified in the next ERPC meeting.
- ii) The ARR of each spare element would be apportioned among all the similar elements in the Eastern Region for the corresponding year.
- iii) The location of putting the spare transformer would be finalised in the next OCC meeting.

The detailed proposal shall be placed in the next meeting of the Standing Committee on Transmission Planning of Eastern Region..

ITEM NO.B3.6: REPLACEMENT OF FAILED ICT-3 (315 MVA, 400/220 KV) AT MALDA (Item no.C9 of MoM of 14th ERPC meeting)

In the 14th ERPC meeting, Powergrid proposal of replacement of failed ICT-3 at Malda by diverting a 315 MVA 400/220 KV transformer from other region of Powergrid and subsequent replenishment of the same by a new 315 MVA 400/220 KV transformer was approved in the meeting.

POWERGRID informed that, in line with deliberation in the 14th TCC & ERPC meeting, one no new spare 315MVA ICT has been diverted from other Region of POWERGRID and efforts are on to commission the same before Durga Puja / Dussera festival.

This is for information of members.

Deliberation in the TCC meeting

Powergrid confirmed that the diverted 315 MVA ICT would be commissioned within first week of Oct'2010.

Deliberation in the ERPC meeting

Members noted.

Subsequently, Powergrid informed that the transformer has been commissioned and successfully charged on 06.10.2010.

ITEM NO.B3.7: SUBSTATION EQUIPMENT FOR DISASTER MANAGEMENT / "ERS-SUBSTATION" (Item no.C14.2 of MoM of 14th ERPC meeting)

During 14th TCC/ERPC meeting held at Manali, Powergrid gave a detailed presentation covering different aspects for procurement of ERS substation as a part of disaster management.

As a follow up action, POWERGRID has arranged for a visit of ER constituents to Karnal S/S of HVPNL on 21.09.2010.

Deliberation in the TCC meeting

Following decisions were taken in the TCC meeting:

- i) There was in-principle agreement regarding the requirement of ERS Sub-Station.
- ii) Powergrid would make arrangement of visit for JSEB, BSEB & Sikkim personnel to Haryana for a site visit.
- iii) The technical specification including the funding arrangement would be worked out separately and would be placed in the next TCC meeting.

Deliberation in the ERPC meeting

ERPC approved the Powergrid proposal for procurement of one number 400 kV ERS Sub-Station as a part of disaster management.

Powergrid shall optimise the funding arrangement by exploring grant/ cheap sources.

The ARR shall be apportioned to each 400kV Sub-Stations in Eastern Region.

PART C

ITEM NO. C: ISSUES REFERRED TO ERPC BY TCC MEMBERS OF THE 15TH TCC MEETING HELD YESTERDAY

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

ITEM NO. C.1: OPERATION OF KAHALGAON STAGE-I & II DURING COAL SHORTAGE CONDITION

In the 53rd OCC meeting, BSEB informed that while U#3 and U#4 of Kahalgaon Stage-I STPS were put under shutdown due to shortage of coal, all the three units of Kahalgaon Stage-II including recently commissioned U#7 were running. As Bihar has marginal share from Kahalgaon Stage-II, it is being adversely affected. ERLDC confirmed BSEB's observation. Members apprehended that units of Stage-II were running at the expense of coal allocated from units of Stage-I. NTPC assured to put older units first at bar.

In the 54th OCC meeting, NTPC informed that

- After 53rd OCC meeting of ERPC, U#4 of KhSTPS was synchronized on 17.08.10. U#3 is scheduled to be synchronized on 09.09.10.
- NTPC have availed the opportunity for overhauling of U#3, which was under shutdown on account of coal shortage.
- In the month of August 2010, ratio of blending of imported coal at Kahalgaon was 12.62%, while rise of GCV was 14.95%.
- Normally during the monsoon season, the coal production and dispatches from mines decreases and this resulted in outage of units on account of coal shortage.
- Also congestion in the railway network between Saithia and Gumani section is the limitation for bringing more rakes through Indian railway network.
- It is expected that after monsoon, both Lalmatia and railway network may support for supplying coal to achieve DC of 85% on daily basis for both FSTPS and KhSTPS stage-I & stage-II.

BSEB stated that operation of all the units of Kahalgaon Stage-I would help BSEB immensely to improve its power supply situation.

In this regard, Member Secretary, ERPC circulated a copy of CIL letter which mentions that 15 MMT ACQ allocated by CIL for Farakka and Kahalgaon STPS does not include coal linkage for U#7. He also cited that NTPC in the 14th ERPC meeting had intimated that CEA has asked CIL for allotment of 2.64 MMT of coal for Kahalgaon Unit # 7 for 2010-11. Therefore, he was of the opinion that a policy decision is to be taken in this regard. NTPC were requested to prepare an agenda note for TCC. NTPC agreed for sending the same.

Members may discuss.

Deliberation in the TCC meeting

Member Secretary, ERPC briefly outlined the history of coal allocation vis-à-vis various stages/units of Kahalgaon STPS. Member States were generally of the opinion that coal allocated for Kahalgaon Unit 1 to 6 should not be diverted to Kahalgaon Unit-7. In view of complexity of the issue, TCC empowered Member Secretary, ERPC to have further deliberation on the issue with a small group comprising of BSEB, JSEB and NTPC after the TCC meeting. The outcome of this deliberation would be placed in the ERPC meeting.

Deliberation in the ERPC meeting

Member Secretary, ERPC flagged the following issues:

- First, the inefficiencies arising out of non-development of linked mines (Coal India/Environment angle), problem in coal transportation (Railways) and NTPC's capacity to receive limited number of rakes/day (delay in wagon tippler commissioning). Any generation constraints due to these inefficiencies should be shared by stakeholders of Kahalgaon U#7 (commissioned last).
- Second is the fact that 15 MMT of coal allocated by CIL was for 1840 MW of Kahalgaon STPS & 1600 MW of Farakka STPS (the then operating capacity). Coal linkage for U#7 of Kahalgaon STPS was not included in that ACQ. Under this scenario, whether it is proper to divert the coal from U#1-4 to U#7 for its the pre-COD trial run or post COD operation.
- Third, in the event NTPC has arranged coal through e-auction, then whether the cost of expensive coal arranged for U#7 should be apportioned to U#1 – 4 by averaging fuel cost/variable charge for the entire station.

NTPC responded:

Annual coal requirement both for FSTPS & KhSTPS Stage-I & Stage-II for 85% DC each is 27 million tons. CIL has allocated ACQ of 15 million tons of coal for Farakka (1600MW) & Kahalgaon (1840MW) which is equivalent to only 61.67% PLF of Farakka & Kahalgaon (1840 MW). CEA vide letter dated 10.05.2010 has asked CIL for allotment of additional 2.64 million tons of coal for Unit-7 of Kahalgaon for the F.Y 2010-11. Till date CIL has not identified the source and has not increased the ACQ.

To achieve 85% PLF of Farakka (1600MW) & Kahalgaon (2340 MW) NTPC has already tied up additional 7.5 million tons of coal which is equivalent to 12 million tons (4 million tons of imported & 3.5 million tons of indigenous E-auction /MOU coal).

At present all the units of Farakka & Kahalgaon are running except Unit-2 of Farakka which is under AOH from 20.09.10 to 30.09.10. During September monthly average coal receipt has gone up to 14.86 rakes per day while annual average coal receipt is of 13.90 rakes per day. It is expected that after monsoon both Lalmatia & Indian railway may support for supplying more rakes to Farakka & Kahalgaon and by the end of financial year coal receipt will be around 19-20 million tons (including 3.5 million tons of imported coal) against 17.66 million tons of last year. With expected annual coal receipt of 19-20 million tons Farakka annual DC will be around 85% & Kahalgaon Stage-I annual DC will be around 80 to 85%.

Till August, 2010 coal receipt for Farakka & Kahalgaon together is as follows:

Sources	Annual Schedule Qty.	Schedule Qty. till August,2010	Actual receipt Qty. till August,2010	Qty. required for balance period
	Million Tons	Million Tons	Million Tons	Million Tons
ACQ	15.00	5.95	5.384	9.616
Imported coal	4.00	1.66	1.419	2.581
Other Ind. Coal (Ranigung/SECL/NCL/Singrani/E-Auction)	3.5	1.45	0.767	2.733
Total	22.5	9.06	7.57	14.93

From the table it indicates that coal receipt till August, 2010 apart from ACQ (NTPC own arrangement) is 2.186 million tons which is equivalent to 3.605 million tons. Annual coal requirement for 85% PLF of Unit-7 is only 3.3 million tons.

DC figures of FSTPS & KhSTPS are as follows:

Stations	DC till 21.09.10(10-11)	DC till 21.09.09(9-10)
	%	%
FSTPS	80.12	71.50
KhSTPS, Stage-I	70.12	65.77
KhSTPS, Stage-II	55.59	62.94

From the above figures, it indicates that in this financial year (Till 21.09.10) Kahalgaon Stage-I DC is more than Kahalgaon Stage-II DC. Also if we compare from last year's figure, Farakka & Kahalgaon Stage-I DC is more in this financial year while Kahalgaon Stage-II DC is less.

NTPC also informed that they had already filed petition with CERC for approval of final tariff for Kahalgaon unit#7 and constituent states could submit their observation before CERC.

After threadbare discussion when no consensus evolved, it was decided that

- For exploring their options and taking appropriate action, constituent states of Bihar, Jharkhand, Orissa and West Bengal formed a sub-committee comprising of Sh. T. T. Jha, Member (Transmission), BSEB, Sh. C. S. Gupta, Member (Tech),

JSEB, Sh. A. C. Mallick, Director (Commercial), GRIDCO and Sh. Anirban Guha, Director (RT), WBSETCL.

- CEA may also be approached to look into the implications of specific coal allocation. (action: ERPC Secretariat)

ITEM NO. C.4: WORKSHOP ON BLACK START AND RESTORATION
– Agenda submitted by ERLDC

With the rapid expansion of the New Grid in terms of capacity and network addition, it is extremely essential that available black start and restoration facilities be reviewed periodically and restoration procedures updated in consultation with beneficiary constituents and generators and transmission licensees.

Conducting workshops on Restoration procedures and Black start facilities with an objective of regular review of the procedure and familiarization for SLDC operators, generators and other licensees as mandated in IEGC is one of the important functions to be discharged by RLDCs. In line with that, ERLDC in the 54th OCC meeting proposed conducting 6 Nos. of such workshops at an estimated cost of Rs. 1.5 lakh per workshops.

Earlier, all such workshops were funded from Reactive pool fund. However, now all pool funds are being diverted to PSDF. Accordingly, ERLDC requested in-principle approval of the above workshops so that same could be forwarded to task force on PSDF. Members agreed with the requirement of the above workshops and referred the matter to TCC/ERPC for concurrence.

Only ERPC approved schemes shall be considered by Task Force of CERC for disbursement from PSDF.

The proposal is placed before TCC / ERPC for its consideration and approval.

Deliberation in the TCC meeting

TCC recommended the ERLDC proposal to ERPC for approval of 6 nos. workshops at an estimated cost of Rs.1.5 lakh per work shop totalling Rs.9 lakh..

Deliberation in the ERPC meeting

As recommended by TCC, ERPC approved the ERLDC proposal and authorised ERLDC to take further necessary action.

**ITEM NO.C6 : COMMISSIONING OF 2 NOS 50MVAR LINE REACTORS AS
BUS REACTOR AT MAITHON S/STN**
– Agenda submitted by POWERGRID

Maithon 400kV sub-station of Powergrid is connected with 400kV Ranchi, Kahalgaon STPS, Mejia STPS and Jamshedpur S/S with D/C lines with only one no 50MVAR bus reactor. The drawing of power from Maithon sub-station by DVC at 220kV level is only around 150-200MW. Even after keeping one circuit of 400kV Ranchi-Maithon off, the 400kV voltage at Maithon frequently hovers around 435 posing stress and system disturbance.

400KV Maithon – Gaya D/C line is being constructed by POWERGRID under DVC main project with 50MVAR Line Reactor in each circuit. However, the commissioning of the said line will be delayed considerably due to forest clearance. In the mean time, 2 nos. 50MVAR line reactors of the said line have arrived at site.

Proposal : It is proposed that these 2 nos. 50MVAR reactors may be installed & commissioned as Bus Reactor at Maithon Sub-station to contain the voltage problems. Till commissioning of Gaya line, the Reactors shall be treated as elements (BR) as part of Eastern Regional Pool.

After completion of the said line (Maithon – Gaya D/C line), these Reactors will be commissioned along with the line as a Line Reactors.

The above contingency arrangement along with the commercial agreement for tariff may be deliberated for resolution.

Members may discuss.

Deliberation in the TCC meeting

Members agreed with the technical requirement. However, the regarding cost sharing the issue would be further deliberated in the ERPC meeting.

Deliberation in the ERPC meeting

BSEB submitted that the voltage problem might be due to under loading of 400 kV Ranchi-Sipat line via-a-vis evacuation constraints in WR. After detailed deliberation, members approved preponement of commissioning of 2 nos. of 50 MVAR line reactors at Maithon sub-station. For interim period it will be treated as Eastern Regional asset.

ITEM NO.C8 : VOLTAGE COLLAPSE PREDICTION RELAY - Agenda submitted by ERLDC

With growing size and complexity of the grid, stability aspects of integrated grid now a days is of utmost importance. The issue of system collapse prediction and related technological innovation was taken up during the last Protection Committee meeting held on 12th Aug,2010 at ERPC , Kolkata when M/s A.Eberle gave a detailed presentation on the issue.

Most of the large power systems in the world have an experience one time or other collapse due to stability aspects and some of these collapses are characterized by the phenomenon such as low frequency oscillation (Smaller signal stability) voltage collapse (slow and fast). The relevance of such phenomenon to large grids at present is due to pressure from Market operation and the requirement of grid operators to operate power system close to the limits. At times due to non-availability of certain transmission elements (transmission depletion) and violation of TTC, the grid may operate under stressed condition where the network damping would be very low. This stressed condition if subjected to further overloadings or trippings may lead to stability problems such as voltage collapse. For analysing the stability aspect, frequency domain and time domain matters are usually enabled by the power system analysts. The frequency domain techniques have an advantage of indicating the degree of stability or margin of stability and the availability or lack of damping and its measures. The frequency damping techniques employ eigen value analysis for

determination of the above. The time domain techniques determine the stability or instability but not the degree of stability. Therefore, for power system planners and system operators in pre-despatch are just before real time operation. The degree of stability, possible low frequency modes and the degree of damping to each of these modes so that the operators can prepare operational and contingency plans. Some of the new stability techniques like Lyapunov exponent) are based on energy functions and the sign of Lyapunov exponent determines whether the same system is stable or not stable. The energy functions based techniques can be used for fast and ‘On line’ computation of stability determination in case of assessment of voltage collapse aspects like determination of Nose point and its distance from operating point. This can be done effectively by tracking of eigen values and determination of HoPF bifurcation point.

Analysis of frequency spectrum in the frequency range of 0.01 to 98 Hz. through spectral analysis would clearly indicate several modes - local, intra-area, inter-area, sub-synchronous and super-synchronous. The damping of low frequency oscillation was found to most suitable through load dumping as compared to PSS training, dumping through several controllers associated with HVDC, TCSC and other FACT devices. It was also established that the load dumping as a counter measure to damp out the low frequency Oscillations (0.1 to 1.2 Hz.) using measurement was established and found to be highly preferable. Incidentally, CPR-D/CPSYS relay of M/s. A.Eberle provides the following applications in the context of the aforesaid aspects:

1. All the modes in the range of 0.012 to 98 Hz. Therefore spectral analysis and measurement of degree of dumping to each of these modes.
2. Calculation of Lyapunov exponent stability and stability limits.
3. Tracking of eigen values and determination of HoPF bifurcation point for determining the voltage collapse
4. Using of Spectral wavelet-analysis instead of DFT to meet the requirement of non-linear analysis as required by real life power systems.
5. Measurement of Frequency (F) and rate of change of frequency (df/dt) with high degree of resolution.
6. Incorporation of Fault Recorder functions.
7. Ability to communicate with and transfer data to SCADA system.

Further, the application of synchrophasor technology using PMUs and application of CPSys-CPR-D/DMR-D relay of M/s. A.Eberle would complement each other. M/s. A.Eberle relays would alert about the state of the present system and degree of stability, damping etc. to enable the operator about the impending contingencies. The PMUs record system parameters after the initiation of the disturbance and operator can response. In case the operator response is fast enough w.r.t. the power system phenomenon

The issues were deliberated by the Protection Committee members during its meeting on 12.8.10 and it was decided to procure about 10 Nos. of Relays of M/s. A.Eberle for the entire ER grid to be deployed at strategic locations alongwith interfacing of the data to SCADA system. The availability of frequency & rate of change of frequency with high accuracy from different (10 locations) points of the grid would enable better analysis of grid disturbances and tuning of AFLUs.

The proposal is put up to TCC/ERPC for its consideration whether or not to accord the approval and for taking up with Task Force of CERC for funding from the PSDF.

Deliberation in the TCC meeting

ERLDC proposed procurement of 10 nos. relay at an estimated cost of Rs.30 lakh per relay totalling Rs.300 lakh. TCC recommended to ERPC for approval of procurement of voltage collapse prediction relays by utilizing the fund from PSDF.

Deliberation in the ERPC meeting

General Manager, ERLDC explained the proposal and clarified that this cost includes the cost of training within it.

ERPC accepted the recommendation of TCC and approved the ERLDC proposal for procurement of the Voltage Collapse Prediction Relay by utilising the fund from PSDF for 10 nos. relay at an estimated cost of Rs.30 lakh per relay totalling Rs.300 lakh..

ERLDC would take further necessary action.

ITEM NO.C18: EASTERN REGIONAL POWER COMMITTEE (CONDUCT OF BUSINESS) RULES, 2006 – AMENDMENT

The Eastern Regional Power Committee (Conduct of Business) Rules, 2006 (CBR) in vogue was adopted in the 1st ERPC meeting held on 25th May,2006. Now need is being felt to amend this CBR to align itself with various new regulations, functions etc. The Secretariat vide its letter dated 17.09.2010 had circulated the amended CBR to TCC members for kind perusal.

Two new chapters, Chapter-VI & VII have been incorporated in the CBR under the title (i) ERPC ESTABLISHMENT FUND & ERPC FUND and (ii) MEETING EXPENSES respectively.

Members may discuss and recommend their views for consideration of ERPC.

Deliberation in the TCC meeting

Referred to ERPC for deliberation.

Deliberation in the ERPC Meeting

As proposed by Member Secretary, ERPC decided that two officers of constituent member of ERPC located in Kolkata will scrutinize the draft Eastern Regional Power Committee (Conduct of Business) Rules,2006–Amendment and the final draft would be submitted to the Chairperson, ERPC for approval. The approved CBR would be placed in the next ERPC meeting for its ratification.

PART –D : ISSUES RELATED TO STANDING COMMITTEE MEETING ON POWER SYSTEM PLANNING IN EASTERN REGION

The Standing Committee meeting on Power System planning in Eastern Region is scheduled to be held on 20.09.2010 at NRPC, Conference Hall, New Delhi-110016. The agenda note of the above meeting has already been posted in CEA website: cea.nic.in on 17.08.2010, which may be referred to each of the respective agenda items. The outcome of this meeting shall be circulated before the TCC meeting for further discussion.

Deliberation in the TCC meeting for item no. D1 to D19

Powergrid made a presentation highlighting the discussions held in Standing Committee meeting on 20.09.10. Powergrid may make the presentation before ERPC for further deliberation.

Deliberation in the ERPC Meeting

The meeting of Standing Committee on Power System Planning in Eastern Region was held on 20.09.2010 at NRPC Conference Hall, New Delhi. Its minutes were yet to be circulated, Powergrid elaborated the gist of the discussions of that meeting (agenda wise).

ITEM NO.D1: CEA AGENDA ITEM NO.2.0 : Establishment of New 400 kV sub-station at Jamshedpur of DVC and LILO of one ckt of 400kV Jamshedpur-Baripada D/C line at Jamshedpur S/S (DVC) in lieu of LILO of one ckt. of 400 kV Parulia-Jamshedpur D/C line

Deliberation in the ERPC Meeting

ERPC agreed that it shall ratify the decision of the Standing Committee on Power System Planning in Eastern Region in its meeting held on 20.09.2010, as minutes are still awaited.

ITEM NO.D2: CEA AGENDA ITEM NO.3.0 : Contingency arrangement for start-up power for 2x500MW Durgapur STPP(Andal) of DVC

Deliberation in the ERPC Meeting

ERPC noted.

ITEM NO.D3: CEA AGENDA ITEM NO.4.0 : Extension of 400kV Jamshedpur S/S (DVC) to facilitate power evacuation from 2x270MW Adhunik TPS (IPP) in Jharkhand

Deliberation in the ERPC Meeting

Powergrid explained the deliberation on this issue in the Standing Committee meeting, wherein it was agreed that LILO of one circuit of 400 KV Maithon-Jamshedpur D/C at Adhunik TPS for start-up power for 1st Unit could be permitted with the pre-condition that M/s Adhunik will make available 8 acres of encroached land at 400/220 kV Jamshedpur S/S of Powergrid and the LILO arrangement would be withdrawn after completion of 400 KV Adhunik –Jamshedpur D/C line.

To a query Powergrid responded that this LILO can serve as a long term arrangement, thus “interim’ suffix is misleading.

Executive Director(ER-I), Powergrid apprehended that it may loose the stake on balance land, in case condition of 8 acres is agreed to.

ERPC agreed not to pursue “the conditionality of 8 acres land” and it left the decision entirely on CEA to decide this evacuation scheme.

After detailed deliberation, ERPC finally decided that CEA may finalise this scheme in consultation with CTU (Powergrid.).

ITEM NO.D4: CEA AGENDA ITEM NO.5.0 : ATS for Nabinagar-II TPS (3x660 MW).

Deliberation in the ERPC Meeting

Powergrid explained the benefits of the ATS for Nabinagar-II TPS (3 x 660 MW) as agreed in the Standing Committee meeting which is –

- Nabinagar-II--Gaya 400 KV D/C line with Quad Moose Conductor
- Nabinagar-II—Patna 400 KV D/C line with Quad Moose Conductor
- Additional 1 x 1500 MVA, 765/400 KV ICT at Gaya

BSEB proposed for Nabinagar-II –Nabinagar-I 400 KV D/C line interconnection. Powergrid explained that the load flow results suggested not to adopt above particularly during contingency of Nabinagar-II--Patna line outage.

After detailed deliberation, ERPC agreed that it shall ratify the decision of the Standing Committee on Power System Planning in Eastern Region in its meeting held on 20.09.2010, as minutes are still awaited. However, the ratification shall be subject to implementing this scheme in phased manner. The commissioning of ICT (1 x 1500 MVA, 765/400 kV) is to match with the commissioning of Nabinagar U # 3.

During deliberation, CTU has also agreed to interact with constituent States at regular intervals, including an interaction prior to the meeting of Standing Committee on Power System Planning in Eastern Region.

ITEM NO.D5: CEA AGENDA ITEM NO.6.0 : Transmission System for IPP Generation Projects in Jharkhand, West Bengal and Orissa

ITEM NO.D6: CEA AGENDA ITEM NO.6.1 : IPPs in Jharkhand & West Bengal and ATS:

ITEM NO.D7: CEA AGENDA ITEM NO.6.1.1 : Immediate evacuation system for Adhunik, Corporate, Essar and Corporate Phase-I generation projects (*under the Scope of Generation Developer*)

ITEM NO.D8: CEA AGENDA ITEM NO.6.1.2 : Common system strengthening for transfer of power from Phase-I generation projects in Jharkhand and West Bengal to NR/WR (*Under the scope of PGCIL*)

I. Common system strengthening for transfer of power from Phase-I generation projects in Jharkhand and West Bengal - Part-A :

II. Common system strengthening for transfer of power from Phase-I generation projects in Jharkhand and West Bengal - Part-B :

III. Private Sector line: *In addition to the above work to be undertaken by PGCIL, Dharamjaygarh – Jabalpur 765kV D/C line (2nd line) would be under the scope of private sector. Associated 765kV line bays at Dharamjaygarh and Jabalpur sub-station would be under the scope of POWERGRID.*

Deliberation in the ERPC Meeting (Item No. D-5, D-6, D-7 & D-8)

ERPC agreed that it shall ratify the proposal(s) approved by the Standing Committee on Power System Planning in Eastern Region in its meeting held on 20.09.2010, as minutes are still awaited.

ITEM NO.D9: CEA AGENDA ITEM NO.6.2 : Phase-I IPPs in Orissa & ATS:

6.2.1 Transmission System : (*Under the Scope of Generation Developer*)

- A. ATS planned Upto Pooling Station at Jharsuguda
- B. ATS planned Upto Pooling Station at Angul

6.2.2 Transmission System for Phase-1 generation projects in Orissa:
(*Under the Scope of PGCIL*)

- I. Transmission System for Phase-1 generation projects in Orissa - Part-A
- II. Transmission System for Phase-1 generation projects in Orissa - Part-B
- III. Transmission System for Phase-1 generation projects in Orissa - Part-C
- IV. Transmission System for Phase-1 generation projects in Orissa - Part-D
(under Private Sector)

Deliberation in the ERPC Meeting

After detailed deliberation, Orissa finally agreed to allow temporary interim arrangement as Phase-I for power evacuation from Sterlite, IndBharat, GMR and Jindal IPPs in Orissa for the following LILO of CTU lines :

Sterlite	LILO of one circuit of Rourkela-Raigarh 400 KV D/C line
IndBharat	LILO of other circuit of Rourkela-Raigarh 400 KV D/C line
G M R	LILO of one circuit of Talcher-Meramundali 400 KV D/C line
Jindal	LILO of Meramundali-Jeypore 400 KV S/C line

The LILOs are subject to the condition that it is for start-up power and evacuation of power from 1st unit only (i.e. LILO to be withdrawn as and when 2nd unit is commissioned).

For Phase-II schemes, CTU and STU (Orissa) should be in agreement before finalization. As already agreed (refer to conclusion of Item No.D4) CTU shall interact with STU with load flow study results regarding future inter / intra regional schemes before Standing Committee meeting for facilitating agreement on these aspects.

ERPC noted.

ITEM NO.D10: CEA AGENDA ITEM NO.7.0 ATS for power evacuation from Phase-I generation projects in Sikkim/Bhutan:

7.1 Project specific revised dedicated transmission system:
(under the scope of Generation Project Developers)

- A. Upto Pooling Station at New Melli/ Kishanganj / Mangan# (proposed at a later date)
- B. Upto Pooling Station at Rangpo

7.2 Revised ATS f or HEPs in Sikkim/ Bhutan:
(under the scope of PGCIL)

- 7.2.1 Under the scope of Part-A work
- 7.2.2 Under the scope of Part-B work,
- 7.2.3 Under the scope of Part-C work,

7.2.4 In accordance with the above proposals, the revised scope of work under Part-A, Part-B & Part-C would be as following:

Part – A: Transmission System for development of pooling station at Kishanganj and associated transmission works (under the Scope of PGCIL)
(By 2011-12, for evacuation of 1300 MW from Sikkim)

Part – B: Transmission System for development of pooling substations within Sikkim and transfer of power to a new pooling station Kishanganj in northern Part of West Bengal/Bihar (under the Scope of PGCIL) (By 2012-13, when additional 1100MW materializes in Sikkim)

Part-C: Transmission System for development for power transfer from Bhutan to NR/WR (under the Scope of PGCIL) (By 2014-15, when Punatsangchu-I (1200MW) comes up in Bhutan)

Deliberation in the ERPC Meeting

Standing Committee had welcomed the transmission scheme under execution of Government of Sikkim particularly 132 kV Chuzachen-Rangpo D/C (Zebra Conductor) line and accorded Govt of Sikkim priority over Powergrid.

ERPC agreed that it shall ratify the proposal(s) approved by the Standing Committee on Power System Planning in Eastern Region in its meeting held on 20.09.2010, as minutes are still awaited.

ITEM NO.D11: CEA AGENDA ITEM NO.8.0 : Interim Arrangement for evacuation of power from Teesta-III HEP (1200MW) being developed by Teesta Urja Ltd.

Deliberation in the ERPC Meeting

Powergrid informed that during Standing Committee meeting held on 20.09.2010, Member (PS), CEA advised to finalise the interim arrangement proposed by Powergrid in a separate meeting between CEA, NHPC, Powergrid, Teesta Urja Ltd, etc. Government of Sikkim desired the implementation of the arrangement before commissioning of 1st Unit of Teesta-III HEP.

Energy & Power Department, Sikkim is in favour of LILO as it allows them opportunity to market “free power”. LILO has no implication in non-monsoon period as each station is operating much below its capacity. NHPC responded that this issue is being examined in their design office at Faridabad.

ITEM NO.D12: CEA AGENDA ITEM NO.9.0 : Cross Border Transmission link between India and Bangladesh

Deliberation in the ERPC Meeting (Item No. D-12 and D-15)

Powergrid informed that on the advice of Member(PS),CEA during the Standing Committee meeting held on 20.09.2010, the detailed scheme would be firmed up after carrying out necessary load flow studies on various scenarios jointly by Powergrid, CEA, WBSETCL and ERLDC on 04.10.2010.

ITEM NO.D13: CEA AGENDA ITEM NO.10.0 Proposal for LILO of one circuit of 765kV Tilaiya UMPP-Balia D/C line at Gaya S/S as part of ATS for Tilaiya UMPP (4000 MW) in Jharkhand

Deliberation in the ERPC Meeting

Powergrid informed that the revised ATS for Tilaiya UMPP as finalized in the Standing Committee meeting is as :

- i) 765 KV Tilaiya-Gaya S/C line
- ii) 765 KV Tilaiya-Balia D/C line
- iii) LILO of one circuit of 765 KV Tilaiya-Balia D/C line at Gaya.

After initial reservation for 765 KV Gaya-Balia S/C line section as per item no. (iii), BSEB agreed.

ERPC agreed that it shall ratify the proposal(s) approved by the Standing Committee on Power System Planning in Eastern Region in its meeting held on 20.09.2010, as minutes are still awaited.

ITEM NO.D14: CEA AGENDA ITEM NO.11.0 : System Reinforcements in ER as a Eastern Regional System Strengthening Scheme:

- (i) Additional Bus Reactor of 1x125 MVAR each at 400/220kV Patna & Ranchi Sub-stations of PGCIL.
- (ii) Proposal of PGCIL for spare Transformers/Reactor to meet the needs of Member States.
- (iii) Proposal for a new 400kV Farakka - Subhasgram D/C line with one circuit to be LILOed at Jeerat S/S

Deliberation in the ERPC Meeting

- i) & ii) Already deliberated under Agenda Item No.B3.5.
- iii) Already deliberated under Agenda Item No.D12.

ITEM NO.D15: CEA AGENDA ITEM NO.12.0 : Proposal of ERPC for establishment of 400kV Gokarna-Binaguri or Gokarna - Malda –Purnea 400 kV D/C

Deliberation in the ERPC Meeting

Already deliberated under Item No.D12.

ITEM NO.D16: CEA AGENDA ITEM NO.13.0 : Augmentation of 220/132 kV ICTs at Birpara, Siliguri and Malda S/Ss of PGCIL

Deliberation in the ERPC Meeting

Already approved by ERPC in its 14th meeting.

ITEM NO.D17: CEA AGENDA ITEM NO.14.0 : Proposal of WBSETCL for Provision of two additional 220kV line bays at 400/220kV Alipurduar S/S of PGCIL for interconnection with the Alipurduar 132kV S/S (WBSETCL) being upgraded to 220kV

Deliberation in the ERPC Meeting

ERPC agreed that it shall ratify the proposal approved by the Standing Committee on Power System Planning in Eastern Region in its meeting held on 20.09.2010, as minutes are still awaited.

ITEM NO.D18: CEA AGENDA ITEM NO.15.0 : Proposal for establishment of 220kV D/C line from 400/220kV Jeypore(PG) S/S in ER to Jagdalpur in South Chattisgarh of WR for alternative supply to Jagdalpur area

Deliberation in the ERPC Meeting

Orissa had suggested that either Indravati or Bolangir 220 KV S/S would be suitable for connectivity between Jagdalpur in South Chattisgarh of WR and South Orissa for alternate supply to that area. CEA may request Chattisgarh to interact with OPTCL for best option of 220 KV radial line to WR.

ERPC noted.

ITEM NO.D19: CEA AGENDA ITEM NO.16.0 : Review of Progress on Earlier Agreed Transmission Schemes

Deliberation in the ERPC Meeting

Powergrid placed details as submitted by it in the Standing Committee meeting (enclosed at Annexure-C).

ERPC noted.

ADDITIONAL AGENDA INTRODUCED BY POWERGRID IN THE ERPC MEETING

The following additional agenda were also presented by Powergrid :

ITEM NO.E1:

- i) WBSETCL's System Strengthening Scheme
– Kharagpur-Chaibasa (PGCIL) 400 KV D/C line
- ii) Bussing of the 2nd circuit of 400 KV Jamshedpur-Rourkela D/C line at Chaibasa (PGCIL) S/S.

Deliberation in the ERPC Meeting

The above schemes have been finalized in the Standing Committee meeting.

ERPC noted the scheme at i).

ii) ERPC agreed that it shall ratify the proposal approved by the Standing Committee on Power System Planning in Eastern Region in its meeting held on 20.09.2010, as minutes are still awaited.

ITEM NO.E2: Orissa UMPP (4000 MW) Transmission System.

Deliberation in the ERPC Meeting

The proposed ATS was presented by Powergrid in the Standing Committee meeting held on 20.09.2010. The same would be further deliberated in the next Standing Committee meeting to be held during November 2010.

ERPC noted.

ITEM NO.E3: Transmission System for Pipavav Energy Generation Project (1200 MW) proposed at Amreli, Gujrat in Western Region.

Deliberation in the ERPC Meeting

Powergrid informed that M/a Pipavav Energy Ltd applied for LTA of 1200 MW, out of which 360 MW power transfer is indicated for Eastern Region. There is no separate strengthening scheme proposed for ER and WR corridor.

ERPC noted.

ITEM NO.E4: Measures to control Short Circuit level in Eastern Region Sub-stations.

Deliberation in the ERPC Meeting

Powergrid had carried out Short Circuit Study which revealed that short circuit level (SCL) at 400 KV major sub-stations has grown up to a very high value (more than 40 KVA).

Powergrid proposed step-by-step bus splitting arrangement for the following 400 KV Sub-stations to contain the short circuit level below 40 KVA :

- Maithon (Powergrid)
- Durgapur (Powergrid)
- Biharsharif (Powergrid)
- Kahalgaon (NTPC Switchyard)

NTPC expressed difficulty in splitting generation switchyard at Kahalgaon.

ERPC noted.

ADDITIONAL AGENDA OF 15th TCC MEETING

E5: POWER SYSTEM DEVELOPMENT FUND – NOMINATION OF ERPC IN MANAGING COMMITTEE

Central Electricity Regulatory Commission vide no. L-1(1)/2009-CERC dated 28.04.2010 notified the Central Electricity Regulatory Commission (Unscheduled Interchange Charges and Related Matters) (Amendment) Regulations, 2010. In the regulation it has been specified that the amount left in the UI Pool account fund after final settlement of claims of Unscheduled Interchange Charges of the generating stations and beneficiaries shall be transferred to a separate fund as may be specified by the commission and shall be utilized with the prior approval of the commission for the activities specified in the regulation.

Subsequently, CERC vide no. L-7/14/2010/CERC dated 04.06.2010 notified Central Electricity Regulatory Commission (Power System Development Fund) Regulations 2010. Clause 3 of the above regulation reads as under :

Quote

3. Constitution of the Fund

- (1) There shall be constituted a fund to be called the “Power System Development Fund” and there shall be credited thereto :-

- (a) Congestion charges standing to the credit of the “Congestion Charge Account” after release of amounts payable to Regional Entities entitled to receive congestion charge along with interest, if any, in accordance with the Central Electricity Regulatory Commission (Measures to relieve congestion in real time operation) Regulations, 2009 as amended from time to time;
- (b) Congestion amount arising from the difference in the market prices of different regions as a consequence of market splitting in power exchanges in accordance with Central Electricity Regulatory Commission (Power Market) Regulations, 2010;
- (c) Unscheduled Interchange Charges standing to the credit of the “Unscheduled Interchange Pool Account Fund” after final settlement of claims of Unscheduled Interchange Charges in accordance with the Central Electricity Regulatory Commission (Unscheduled Interchange Charges and Related Matters) Regulations, 2009 as amended from time to time;
- (d) RLDC Reactive Energy Charges standing to the credit of Reactive Energy Charges Account;
- (e) Such other charges as may be notified by the Commission from time to time.

Unquote

Further, clause 7.1 of the above regulation reads as under :

Quote

7. Managing Committee

- (1) A Managing Committee shall be appointed by the Commission for the administration of the Fund, consisting of the following members :-
 - (i) Head of NLDC/Entity entrusted with the function of NLDC and RLDCs shall be designated by the Commission as the Chairperson of the Managing Committee;
 - (ii) Representative of each of the Regional Power Committees (RPC);
 - (iii) Representative of each of the RLDCs;
 - (iv) An Officer of NLDC, not below the rank of General Manager, as nominated by the head of NLDC shall be the Member Convenor; and
 - (v) Two independent external members nominated by the Commission and of whom one member, in the opinion of the Commission, shall have special knowledge or experience in the field of finance in the power sector and other member shall have the wide experience in the power sector.

Provided that appointment of the independent external members shall be subject to their acceptance of the nomination.

Unquote

CERC in its order dated 14.09.2010 appointed the Managing Committee for the Power System Development Fund as under :

Sl. No.	Position in the Managing Committee	Person Nominated
1.	Chairman of the Managing Committee	Shri S.K. Soonee, CEO, Power System Operation Corporation Ltd
2.	Representative of Regional Power Committee	An Officer of the level of General Manager or above to be nominated by each of the five Regional Power Committee (RPC) by 25 th September, 2010
3.	Representative of Regional Load Despatch Centre	(a) Shri V.K. Agarwal, G.M., Northern Regional Load Despatch Centre (b) Shri M.G. Raoot, E.D., Western Regional Load Despatch Centre (c) Shri P. Pentayya, G.M., Eastern Regional Load Despatch Centre (d) Shri P.R. Raghuram, G.M., Southern Regional Load Despatch Centre (e) Shri T.S. Singh, AGM (I/C), North-East Regional Load Despatch Centre
4.	Member Convenor	Shri V.V. Sharma, General Manager, National Load Despatch Centre
5.	Independent External Member (Finance)	Shri R. Balasubramanian, Ex-Executive Director (Finance), Neyveli Lignite Corporation Ltd, Neyveli. R/o: B-1, Indus Mahanadhi, 15, Kalamegam Street, East Tambaram, Chennai-600 059.
6.	Independent External Director (Power Sector Expert)	Shri M.M. Babu Narayanan, Additional Director, Central Power Research Institute, Bangalore.

As per Para 2 of the order, an Officer of the level of General Manager or above is to be nominated by each of the five Regional Power Committees by 25th September 2010 as representative of Regional Power Committee in the Managing Committee of the Fund.

In this context, prior to the formation of the Committee, the Task Force formed by the Commission to suggest the activities and projects for utilization of the fund had already held two meetings, first on 09.07.2010 at NLDC, New Delhi and the second on 09.08.2010 at CERC, New Delhi.

TCC may discuss and recommend to **ERPC the name of the suitable representative for representing Eastern Regional Power Committee in the Managing Committee of the Power System Development Fund.**

Deliberation in the TCC meeting

TCC referred to ERPC for nomination of ERPC in the managing Committee of PSDF.

Deliberation in the ERPC meeting

ERPC nominated Member Secretary, ERPC as representative of Eastern Regional Power Committee in the Managing Committee of Power System Development Fund (PSDF). However, ERPC made the following observations :

- i) Handling fund of this nature by a Regulator is unique.
- ii) System Operators, like NLDC and RLDCs should not have been entrusted with the role of system development.
- iii) A broader representation from each region should have been made.
- iv) Composition of the Managing Committee is heavily tilted in favour of POSOCO. This should have been avoided.
- v) Each region should have ultimate say in the utilization of the fund contributed to PSDF.

Finally, it was decided that the functioning of the Managing Committee as well as utilization of Power System Development Fund would be closely monitored by ERPC. If necessary, it will be put up to judicial scrutiny.

Member Secretary was advised to convey this deliberation to Secretary, CERC.

ITEM NO. E6: FIBER OPTIC CONNECTIVITY TO THE UPCOMING SUBSTATIONS IN EASTERN REGION- AGENDA SUBMITTED BY POWERGRID

Powergrid submitted additional agenda (Copy at Annexure –E1) on the need for fiber optic connectivity to the upcoming substations in ER for smart grid implementation as well as WAMS technology. Total 1055 kms of OPGW connectivity is proposed at a cost of approx. Rs. 20 crore including communication equipments.

Gist of deliberation in the TCC meeting

TCC referred the issue to ERPC for deliberation.

Deliberation in the ERPC meeting

Powergrid clarified that the facility would be used by electricity sector only.

ERPC approved the proposal of Powergrid for Fiber Optic Connectivity to the upcoming sub-station in Eastern Region at a total cost of Rs.20 crore.

It was further agreed that anything left can also be considered in consultation with Member Secretary, ERPC / constituents.

ITEM NO. E7: ADDITIONAL AGENDA INTRODUCED BY GRIDCO IN THE ERPC MEETING

ITEM NO.E7.1 Scheduling of power from TSTPS, Kaniha, Stage-II at ER Frequency

Out of 2000 MW capacity of TSTPS, Kaniha, Stage-II, 200 MW is only allocated to Orissa (ER) as home State Share and balance 1800 MW is allocated in favour of SR

constituents. Though power is generated at ER (NEW Grid) frequency and then transmitted to SR, which is not synchronized to NEW Grid, without scheduling through ERLDC. Further, drawal of power is also made through Meramundali-Jeypore-Gajuwaka line using ER system. Again during outage of poles of HVDC, disposal of URS is made through ER system.

In view of this scheduling of power of TSTPS, Kaniha, Stage-II may be processed through ERLDC immediately.

Deliberation in the ERPC Meeting

The Sub-Committee constituted for the purpose should take up the matter with SRLDC/ ERLDC & CEA.

ITEM NO. E7.2 Impact of Open Access on UI Mechanism

As per the prevailing CERC Unscheduled Interchange Regulation'2010, a State can only underdraw / inject maximum 10% of the quantum of ERLDC scheduled power to the State.

The ERLDC schedule is getting reduced with permission of open access resulting in limiting the under drawal and over drawal of the beneficiary State. RLDC may schedule separately for the beneficiary without netting the same as composite schedule and without taking away the State beneficiary limitation of UD / OD.

Deliberation in the ERPC Meeting

After deliberation, it was decided that this issue would be put up in the next Commercial Sub-Committee meeting and the decision therein would be put up in next TCC / ERPC meeting.

ITEM NO. E7.3 Setting up of ATS for the Upcoming IPPs in Orissa

For evacuation of State entitlement as well as to sale power to outside the State, OPTCL has come up with a proposal to set up ATS with 400 KV Sub-Pooling Stations which is better and more beneficial than the temporary LILO arrangements considered by PGCIL for the following reasons :-

- Requirement of less corridor
- Involvement of less forest area
- Less investment than the earlier proposal
- Less gestation period
- In case of problem in CTU, some power can still evacuated through the STU network.
- Since it is an ATS, STU charges will not be levied and ATS charge will be very nominal.

While the matter has been discussed in details in last Special TCC held on 12.04.2010 and appraised to CEA / PGCIL, we are yet to get response.

GRIDCO agreed to the proposal of PGCIL in the last Standing Committee meeting held at Delhi on 20.09.2010 in order to expedite the ongoing evacuation scheme. PGCIL has not convened a meeting as decided in the last Special TCC not it parted with the studies which they have promised to do. GRIDCO still urges that the STU proposal is having advantages

and should be implemented by doing away with the temporary LILO arrangements of PGCIL.

ERPC is requested to come out firmly on the matter.

Deliberation in the ERPC Meeting

GRIDCO submitted that the temporary LILO was permitted only for the 1st units of the phase-I projects for which the LILO is allowed in order to expedite the ongoing evacuation scheme to avoid further delay.

It was decided that PGCIL should discuss its programme before the same is taken up in the Standing Committee so that the beneficiaries will get the background of the planning specifying enough reason for deciding a particular evacuation system.

ITEM NO. E7.4 Multiple connectivity for the upcoming generating stations

A number of coal fired thermal generating stations are coming up in Orissa out of which 7 nos. are considered as fast-track projects and will be commissioned within 2 years. All of them has applied for LTOA to PGCIL and has signed BPTA.

PGCIL (CTU) is planning for evacuation of power to outside from these generating stations. As per the PPA, Orissa is to avail the State share power from these generating stations. Also these generating stations may avail emergency / start-up / back-up power from the State grid through STU.

GRIDCO / OPTCL propose multiple connectivity for these upcoming generating stations satisfying (n-1) Criteria. In case CTU connectivity is not available (at least for 0.5% annually), power from these generating stations will get bottled up and connectivity through additional lines should be considered immediately.

GRIDCO / OPTCL urge for the connectivity to CTU through STU wherever possible satisfying the technical requirements. CEA being the apex body for Intra-state Planning may co-ordinate and ensure that STU / State beneficiaries are consulted properly which is as per the CEA guidelines for inter-State transmission line planning.

Deliberation in the ERPC Meeting

GRIDCO submitted while PGCIL justifying the planning for evacuation with N-I criteria by joint setting up a 400 KV D/c line for even evacuation of 700-800 MW, it is to note that for TSTPS, Kaniha & TTPS, there are 4-5 evacuation systems. As multiple connectivity was not considered for phase-I projects, PGCIL was requested to consider multiple connectivity for the next phase of projects coming up in Orissa.

PART F: FUNDING OF ERPC SECRETARIAT FOR THE YEAR 2010-11

ITEM NO.F1: ERPC-ESTABLISHMENT FUND FOR THE YEAR 2010-11

In the 13th ERPC meeting held on 26.03.2010 contribution of Rs.14 lakh per member for the year 2010-11 was approved.

The Secretariat vide letters dated 30.04.2010 and 29.07.2010 has requested the constituent members to send their contributions.

So far, contributions have been received from BSEB, JSEB, TVNL, OPTCL, OPGC, OHPC, GRIDCO, WBSEDCL, WBSETCL, WBPDC, CESC, DVC, NTPC, NHPC, POWERGRID, PTC, Powerlinks and Sikkim.

Contributions from Durgapur Projects Ltd. (DPL), Bihar State Hydro Power Corporation (BSHPC) and Tata Power Company Ltd. (TPCL) are still awaited.

DPL, BSHPC and TPCL are requested to send their contributions to ERPC Secretariat.

Deliberation in the ERPC Meeting

ERPC decided that ERPC Secretariat would write to DPL and TPCL to send their contributions. As proposed by Member Secretary, ERPC decided not to pursue with BSHPC for its contribution, being a very small hydro company, thus falling under the administrative control of Ministry of New and Renewable Energy (MNRE).

ITEM NO.F2: ERPC FUND FOR THE YEAR 2010-11

In the 13th ERPC meeting held on 26.03.2010 contribution of Rs.50,000/- per member for the year 2010-11 was approved. The fund is utilised for holding various meetings, workshops, seminars etc. at ERPC Secretariat.

The Secretariat vide letters dated 30.04.2010 and 29.07.2010 has requested the constituent members to send their contributions.

So far, contributions have been received from BSEB, TVNL, OPTCL, OPGC, OHPC, GRIDCO, WBSEDCL, WBSETCL, WBPDC, CESC, DVC, NTPC, NHPC, POWERGRID, PTC, Powerlinks and Sikkim.

Contributions from Jharkhand State Electricity Board (JSEB), Durgapur Projects Ltd. (DPL), Bihar State Hydro Power Corporation (BSHPC) and Tata Power Company Ltd. (TPCL) are still awaited.

JSEB, DPL, BSHPC and TPCL are requested to send their contributions to ERPC Secretariat.

Deliberation in the ERPC Meeting

ERPC decided that ERPC Secretariat would write to JSEB, DPL and TPCL to send their contributions. As proposed by Member Secretary, ERPC decided not to pursue with BSHPC for its contribution, being a very small hydro company, thus falling under the administrative control of Ministry of New and Renewable Energy (MNRE).

Subsequently, contribution from JSEB has been received on 04.10.2010.

ITEM NO.F3: ERPC ESTABLISHMENT FUND AND ERPC FUND – Submission of Financial Statement

It is proposed that financial statement in respect of ERPC Establishment Fund and ERPC Fund shall be placed before ERPC at annual interval.

First of such statement shall be placed in the next meeting.

Members may please note.

Deliberation in the ERPC Meeting

Member noted.

PART G

ITEM NO.G1 : APPLICATION OF APNRL FOR MEMBERSHIP OF ERPC

Adunik Power & Natural Resources Ltd. (APNRL) vide its letter dated 16.09.2010 has stated the following and applied for membership of ERPC :

- APNRL project near Jamshedpur has a projected capacity of 1080 MW.
- 2X270 MW units in the first phase will be commissioned by June,2012.
- 2X270 MW units in the second phase will be commissioned by December,2014.
- POWERGRID has already granted LTOA for 450 MW in the first phase.
- APNRL will require start up power from September,2011.
- APNRL is required to coordinate with constituents of Eastern Region alongwith POWERGRID, ERPC and ERLDC.

Subsequently, APNRL has sent its contribution for ERPC Establishment Fund and ERPC Fund for the year 2010-11.

Regarding membership of ERPC, Para 3(iv) of GoI Resolution states :

“A representative each of every generating company (other than central generating companies or State Government owned Generating Companies) having more than 1000 MW installed capacity in the region.”

In the past ERPC has approved Associate Membership of GRIDCO, PTC and POWERLINKS through its own resolution.

Members may discuss and decide on membership of APRNL.

Deliberation in the ERPC Meeting

After deliberation, ERPC approved the associate membership of Adunik Power & Natural Resources Ltd (APNRL).

ITEM NO.G2 : APPLICATION OF MPL FOR MEMBERSHIP OF ERPC

Maithon Power Limited (MPL) vide its letter dated 11th August'10 has sought membership of ERPC. MPL made a presentation in 54th OCC meeting held on 9th September'10 on progress of the project. Salient features of the project are:

- MPL is joint venture of Tata Power and DVC.
- The project is of capacity 1050 MW (2X525 MW) and located on the right bank of Maithon in the State of Jharkhand.
- Unit No.1 & 2 are expected to be synchronised in November'10 and March'11 respectively.
- PPA has been signed with DVC, WBSEDCL, NDPL and PSEB for sale of power.
- Evacuation system comprises of 400 kV Maithon (MPL)-Maithon(PG) D/C and Maithon (MPL)-Ranchi D/C lines.

Subsequently, vide letter dated 16.09.2010 MPL has sent its contribution for ERPC Establishment Fund and ERPC Fund for the year 2010-11.

Regarding membership of ERPC, Para 3(iv) of GoI Resolution states :

“A representative each of every generating company (other than central generating companies or State Government owned Generating Companies) having more than 1000 MW installed capacity in the region.”

Earlier, ERPC had approved Associate Membership of GRIDCO, PTC and POWERLINKS through its own resolution.

Members may discuss and decide on membership of MPL.

Deliberation in the ERPC Meeting

After deliberation, ERPC approved the associate membership of Maithon Power Ltd. (MPL).

ITEM NO.G3 : FINALISATION OF VENUE AND TENTATIVE DATE OF THE NEXT COMMITTEE MEETING

The roster approved in the first ERPC meeting held in Kolkata on 25.05.2006 is given below :

Sl. No.	Host Organisation
1.	WEST BENGAL
2.	DVC
3.	NHPC
4.	PGCIL
5.	SIKKIM
6.	MEMBER, IPP
7.	MEMBER, TRADER
8.	ORISSA
9.	JHARKHAND
10.	BIHAR
11.	NTPC

Tata Power Company Ltd. (Member IPP) has never attended ERPC meeting. ERPC in its 14th meeting held on 11th June,2010 was unanimous in omitting Tata Power and sought PTC (Member Trader) to host the next meeting after Sikkim.

Therefore, it is the turn of PTC to host the next meeting, for which Members may decide tentative date and venue.

Deliberation in the ERPC Meeting

Orissa expressed their willingness to host the next meeting. Their request was accepted and the turns of Orissa and PTC were swapped.

It was decided to host the next TCC/ERPC meetings on 20th /21st December,2010 respectively at Bhubaneswar.

Thereafter, the meeting ended with Vote of Thanks.

EASTERN REGIONAL POWER COMMITTEE

MINUTES OF THE 15TH TCC MEETING

Date: 27.09.2010

Venue : Norbu Gang Resort, Pelling

Chaired by : Shri Anirban Guha, Director (R&T), WBSEDCL.

The list of participants is given at Annexure-B.

Host : Energy & Power Department, Govt. of Sikkim.

Shri P.B. Subba, Chief Engineer, Energy & Power Department, Govt. of Sikkim, welcomed Shri Anirban Guha, Chairperson-TCC & Director (R&T), WBSEDCL, Shri A.K. Rampal, Member Secretary, ERPC, other distinguished TCC members and participants on behalf of Energy & Power Department, Govt. of Sikkim. He thanked ERPC for giving Sikkim an opportunity to host the meeting and wished for pleasant and comfortable stay of all guests. About Pelling he said “ Pelling is a small township but very important tourist destination in West Sikkim. The mighty Kanchenjanga beckons in the West and the place has important historic and religious spots around it.” He stated that the demand of Sikkim is about 80 MW and is increasing at the rate of 15 to 20%. The State Government has taken bold initiatives and about 25 hydel projects of about 5000 MW are under development. Powergrid has chalked out two pooling station for evacuation of power from the new projects. State Government will be coordinating with the developers for evacuation of their power upto the pooling station.

Shri A.K. Rampal, Member Secretary, ERPC, welcomed Shri Anirban Guha, Chairperson-TCC & Director (R&T), WBSEDCL, Shri P.B. Subba, Chief Engineer, Energy & Power Department, Govt. of Sikkim, Shri A.C. Sarkar, Director (Transmission), WBSETCL, Shri M.K. Bandyopadhyay, Director (Commercial), DVC, Shri. U.P. Pani, Regional Executive Director, NTPC, Shri K.K. Agrawal, Executive Director, Powergrid, Shri P. Pentayya, General Manager, ERLDC, Shri A.C. Mallick, Director (Commercial), GRIDCO. He specially welcomed Shri T.T. Jha, Member (Transmission), BSEB, Shri C.S. Gupta, Member (Technical), JSEB, Shri R. Bose, Director (FM & HR), WBPDCCL, who were attending the TCC meeting first time as new member and Shri H.K. Vaidya, Chief General Manager (S&M), Coal India Limited and Shri M.K. Roy, Advisor (Commercial), Adhunik Power, who were attending the meeting as Special Invitee. He also welcomed other participants and his colleagues from the Secretariat. He thanked Shri P.B. Subba, Chief Engineer, Energy & Power Department, Govt. of Sikkim, for excellent arrangement for the meeting. He briefly drew attention of the members on few important issues like allocation & utilization of coal at Kahalgaon STPS of NTPC, power evacuation plan from the upcoming power projects like Adhunik, Teesta Urja etc. and hoped for fruitful discussion on the issues.

Shri Anirban Guha, Chairperson-TCC & Director (R&T), WBSEDCL, welcomed all TCC members, special invitees and other participants. He thanked Shri P.B. Subba, Chief Engineer, Energy & Power Department, Govt. of Sikkim, for hosting the meeting in an excellent manner. He wished for fruitful Deliberation on the issues slated for discussion in the meeting and sought cooperation from the members for arriving at consensus on the important issues.

**ITEM NO.A1 CONFIRMATION OF THE MINUTES OF 14th TCC MEETING
HELD ON 11.06.2010 AT MANALI**

The minutes of 14th TCC meeting were circulated vide letter no. ERPC/TCC & Committee/14/2010/2038-2088 dated 14.07.2010.

So far, no comments have been received from the constituent members on the minutes of the meeting.

Members may confirm the minutes of 14th TCC meeting.

Deliberation in the TCC meeting

WBSETCL had given certain observation regarding the minutes recorded against item no D1 of MoM of 14th TCC meeting. As the item has also listed for deliberation in the 15th TCC meeting, WBSETCL agreed not to press ahead for amendment to the minutes of the 14th TCC/ERPC meeting.

Members confirmed the minutes of 14th TCC meeting.

**PART B: FOLLOW UP ACTION ON THE DECISIONS OF PREVIOUS
TCC/ERPC MEETINGS**

**ITEM NO. B1: CONSTITUTION OF A COMMITTEE TO LOOK INTO ISSUES
PERTAINING TO GENERATION FROM TALCHER STPS
STAGE - I & II (Item no.B 3.1 of MoM of 14th ERPC meeting)**

A Committee comprising of Director (Commercial), GRIDCO, Member Secretary, ERPC, Executive Director (TSTPS), NTPC and one officer of Talcher STPS was constituted to look into issue of coal diversion from Talcher Stage-I to Stage-II.

After visit of Talcher STPS by the Committee, a draft report was circulated among the Committee members. GRIDCO had sent its comment on the report. In the 54th OCC meeting held on 13.09.10, it was given to understand that the final report is being finalized.

Deliberation in the TCC meeting

Member Secretary, ERPC stated that the Committee had taken care of Orissa's apprehension regarding diversion of coal. NTPC assured that generation performance of both Stages of Talcher STPS would be at par from October,2010. The Committee informed that the report had been finalized and would be shortly circulated to all concerned.

**ITEM NO. B2: SYNCHROPHASOR TECHNOLOGY IN EASTERN REGION
(Item no.C13 of MoM of 14th ERPC meeting)**

ERLDC vide its letter had proposed implementation of synchrophasor technology in ER. The proposal consisted of installation of PMUs at 25 locations in Phase – I of its implementation, the expected expenditure was estimated as `965 lakhs. In phase – II of the project, the proposal included more numbers PMUs installation along with implementation of various application packages such as State Estimation, adaptive protection schemes, etc. with an estimated expenditure of `900 lakhs. Thus, the total expenditure of the project was estimated as `1865 lakhs.

During the 2nd meeting of the Task Force , the issue was deliberated for consideration wherein it was suggested that a smaller pilot project in ER to be taken up to gain experience and then opt for full-scale implementation. In this context, it is to mention that a smaller pilot project has already been taken up and is functional in NR. The experience of the pilot project is already being shared among all Regional Load Despatch Centres.

Based on the views expressed during the 2nd Task Force meeting, a detailed study was further carried out to find out optimum placement of PMUs in order to have a better observability of the entire system based on which a technical paper titled “A simple and efficient approach for optimal placement of PMUs – A case study for Eastern Regional Grid” has been prepared and also submitted for the National Power System Conference 2010.

The pilot project to be taken up in ER should be beyond the scope of that taken up in NR in order to gain further experience rather than a repeat exercise. It is also required to gain experience through ER – pilot project on the issues of data handling, visualization interfacing with SCADA /EMS and some minor applications. Such extended scope of the pilot project requiring more than 10 Nos. PMUs and to be determined on a technical basis and minimum number of PMUs become a critical mass. Additional number of PMUs would only lead to incremental cost. Even though 28 Nos. of PMUs form basic requirement, 25 Nos. PMUs have been proposed based on the communication infrastructure without this critical mass (25 Nos. of PMUs), it would not be possible to study some minor applications and we should not miss out plucking the low hanging fruits. Precisely due to this reason, WRLDC had also planned for 30 Nos. PMUs with minor applications in the scope of the project still these projects (that of WR and ER) can be viewed as pilot projects with extended scope as compared to the NR project. It may not be prudent to take up similar pilot projects like NR project without entichment of experience and value addition. Some minor applications and data handling interfaces need to be tried out in the pilot projects stated to be taken up by the other regions

The proposal along the cost estimate was duly approved by the ERPC during its deliberation at 14th ERPC meeting held on 11.06.2010. It is once again proposed that ERLDC may go ahead with Task force of the Commission for consideration of the original proposal of 25 number of PMU procurement.

Deliberation in the TCC meeting

TCC recommended to ERPC for approval of ERLDC proposal for implementation of synchrophasor technology in Eastern Region for 25 nos. PMUs at an estimated cost of Rs.1865 lakh utilizing PSDF.

ITEM NO. B3: CAPACITY BUILDING PROGRAMMES

(Item no.4..5 of MoM of 13th ERPC meeting)

The 13th ERPC meeting held on 26.03.2010 had approved the training programmes to be imparted by M/s. AREVA. While various application functions available at ERLDC such as SCADA, EMS, Despatch Training Simulator are being utilized at ERLDC, the objective of this training through OEM was essentially to impart training for utilization of such facilities at the state level Control Centres. Following are the proposed training programmes as suggested by ER constituents and approved by ERPC along with estimated expenditure as offered by M/s. AREVA Besides the above programmes, ERPC

also approved workshops on Transmission pricing, power exchange and Free Governor Mode of Operation were also approved.

Sl. No.	Project Description	Estimated Expenditure (in lakhs)	Fund Source*	Approval Reference
1.	Training on SCADA/EMS by M/s. AREVA			
1a)	EMS application training – 2 batches	13.648	ER Reactive Pool Account	13 th ERPC meeting held on 26.03.2010
1b)	SCADA DB & Display training – 3 batches	18.612		
1c)	Despatcher's training – 2 batches.	4.100		
Sub Total		36.36 lakhs	(Excluding Taxes & Duties)	
2.	Workshop on Transmission pricing, Power Exchange FGMO	20.00	ER Reactive Pool Account.	13 th ERPC meeting held on 26.03.2010
Total		56.36 lakhs		

While the aforesaid training programmes were duly approved at the ERPC forum. The issue need to be deliberated during the 3rd meeting of the Task Force for approval . **It is, therefore, requested that TCC may approve taking up this agenda again with the Task force for final approval.**

Deliberation in the TCC meeting

TCC recommended to ERPC for approval of the proposal of ERLDC regarding capacity building programme at a total cost of Rs. 56.36 lakh utilizing PSDF.

ITEM NO. B4: 220 KV AND 132 KV TAKE OFFS FROM NEW SUB-STATIONS COMING UP UNDER ERSS-III (Item no.C15 of MoM of 14th ERPC meeting)

Following new sub-station are being established by POWERGRID under Eastern Region Strengthening Scheme-III, for which respective constituent may identify and implement the take-off link:

New Sub-Stations	No. of line bays for take-off
400/132 KV S/s at Lakhisarai by LILO of Kahalgaon-Biharshariff 400 KV D/C (1 st line)	4 nos. 132 KV line bays
400/132 KV S/s at Banka by LILO of Kahalgaon-Biharshariff D/C (2 nd line)	4 nos. 132 KV line bays
400/220 KV S/s at Daltonganj with Sasaram-Daltonganj 400 KV D/C	4 nos. 220 KV line bays
400/220 KV S/S at Chaibasa by LILO of Jamshedpur-Rourkela 400 KV D/C	4 nos. 220 KV line bays
400/220 KV S/S at Keonjhar by LILO of Rengali-Baripada 400 KV S/C	4 nos. 220 KV line bays
400/220 KV S/S at Uttara with Uttara-Mendhasal 400 KV D/C	6 nos. 220 KV line bays

400/220 KV S/S at Bolangir by LILO of Meramundali-Jeypore 400 KV S/C	4 nos. 220 KV line bays
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BSEB, JSEB & OPTCL may please confirm the present status of construction of take off links from their respective proposed sub-stations.

Deliberation in the TCC meeting

BSEB submitted the following take offs:

- ✓ 400/132 kV substation at Lakhisarai by LILO of Kahalgaon-Biharshariff 400 kV D/c (1st line)
- ✓ 400/132 kV substation at Banka by LILO of Kahalgaon-Biharshariff 400 kV D/c (2nd line)

OPTCL also submitted the take off as below:

- ✓ 2 nos 220 kV bays for proposed Khuntuni 400/220 kV S/S near Dhenkanal.
- ✓ 2 nos bays for proposed 220/132 kV Nuagaon S/S near Keonjhar
- ✓ 2 nos 220 kV bays for 220/132 kV Karadgadia S/S near Khurda
- ✓ 2 nos 220 kV bays for proposed 220/132 kV S/S at Puri
- ✓ 2 nos 220 kV bays for 220/132 kV Sadeipalli S/S(Near Bolangir S/S)

ITEM NO.B5: PROCUREMENT OF SPARE TRANSFORMERS TO MEET THE NEED OF MEMBER STATES
(Item no.C8 of MoM of 14th ERPC meeting)

In the 13th ERPC meeting held on 26.03.2010, ERPC approved the procurement of 2 nos. of 315 MVA, 400/220 kV auto transformer (one to be kept at Biharshariff and one at Durgapur S/S) and 1 no. 50 MVAR shunt reactor (this was subsequently changed to 80 MVAR in the 14th ERPC meeting) (to be kept at Rourkela S/S) with the following conditions :

- a) These elements would be used as a part of disaster management
- b) These would be used exclusively for the scheduled network in the Eastern Region;
- c) These elements would be kept in charged condition.

Further, in the 14th ERPC meeting held on 11.06.2010, ERPC approved procurement of the followings :

- 2 nos. 315 MVA 400/220 kV ICTs
- 1 no. 160 MVA 220/132 kV ICT
- 1 no. 50 MVA 220/132 kV ICT
- 1 no. 50 MVA 132/66 kV ICT

The transformers will be kept in charged condition and location will be decided during “lead time” and shall be exclusively used by ER beneficiaries.

They will form a part of CTS of Eastern Region until any one is requisitioned by any beneficiary, thereafter that element will form a part of STS of that beneficiary.

Powergrid may furnish the latest status of procurement of the above transmission elements.

Deliberation in the TCC meeting

WBSETCL proposed that instead of one no of 50 MVA 220/132 kV ICT , one no 160 MVA 220/132 kV ICT should be procured as spare transformer as the 50 MVA transformer finalized in the 14th ERPC meeting has very limited utility.

TCC recommended to ERPC to consider referring the issue to OCC for a fresh look into the requirements.

ITEM NO.B6 REPLACEMENT OF FAILED ICT-3 (315 MVA, 400/220 KV) AT MALDA (Item no.C9 of MoM of 14th ERPC meeting)

In the 14th ERPC meeting, Powergrid proposal of replacement of failed ICT-3 at Malda by diverting a 315 MVA 400/220 KV transformer from other region of Powergrid and subsequent replenishment of the same by a new 315 MVA 400/220 KV transformer was approved in the meeting.

POWERGRID informed that, in line with deliberation in the 14th TCC & ERPC meeting, one no new spare 315MVA ICT has been diverted from other Region of POWERGRID and efforts are on to commission the same before Durga Puja / Dussera festival.

This is for information of members.

Deliberation in the TCC meeting

Powergrid confirmed that the diverted 315 MVA ICT would be commissioned within first week of Oct'2010.

ITEM NO.B7 SUBSTATION EQUIPMENT FOR DISASTER MANAGEMENT / "ERS-SUBSTATION" (Item no.C14.2 of MoM of 14th ERPC meeting)

During 14th TCC/ERPC meeting held at Manali, Powergrid gave a detailed presentation covering different aspects for procurement of ERS substation as a part of disaster management.

As a follow up action, POWERGRID has arranged for a visit of ER constituents to Karnal S/S of HVPNL on 21.09.2010.

Deliberation in the TCC meeting

Following decisions were taken in the TCC meeting:

- i) There was in-principle agreement regarding the requirement of ERS Sub-Station.
- ii) Powergrid would make arrangement of visit for JSEB, BSEB & Sikkim personnel to Haryana for a site visit.
- iii) The technical specification including the funding arrangement would be worked out separately and would be placed in the next TCC meeting.

PART C : NEW ITEMS

ITEM NO. C.1: OPERATION OF KAHALGAON STAGE-I & II DURING COAL SHORTAGE CONDITION

In the 53rd OCC meeting, BSEB informed that while U#3 and U#4 of Kahalgaon Stage-I STPS were put under shutdown due to shortage of coal, all the three units of Kahalgaon Stage-II including recently commissioned U#7 were running. As Bihar has marginal share from Kahalgaon Stage-II, it is being adversely affected. ERLDC confirmed BSEB's observation. Members apprehended that units of Stage-II were running at the expense of coal allocated from units of Stage-I. NTPC assured to put older units first at bar.

In the 54th OCC meeting, NTPC informed that

- After 53rd OCC meeting of ERPC, U#4 of KhSTPS was synchronized on 17.08.10. U#3 is scheduled to be synchronized on 09.09.10.
- NTPC have availed the opportunity for overhauling of U#3, which was under shutdown on account of coal shortage.
- In the month of August 2010, ratio of blending of imported coal at Kahalgaon was 12.62%, while rise of GCV was 14.95%.
- Normally during the monsoon season, the coal production and dispatches from mines decreases and this resulted in outage of units on account of coal shortage.
- Also congestion in the railway network between Saithia and Gumani section is the limitation for bringing more rakes through Indian railway network.
- It is expected that after monsoon, both Lalmatia and railway network may support for supplying coal to achieve DC of 85% on daily basis for both FSTPS and KhSTPS stage-I & stage-II.

BSEB stated that operation of all the units of Kahalgaon Stage-I would help BSEB immensely to improve its power supply situation.

In this regard, Member Secretary, ERPC circulated a copy of CIL letter which mentions that 15 MMT ACQ allocated by CIL for Farakka and Kahalgaon STPS does not include coal linkage for U#7. He also cited that NTPC in the 14th ERPC meeting had intimated that CEA has asked CIL for allotment of 2.64 MMT of coal for Kahalgaon Unit # 7 for 2010-11. Therefore, he was of the opinion that a policy decision is to be taken in this regard. NTPC were requested to prepare an agenda note for TCC. NTPC agreed for sending the same.

Members may discuss.

Deliberation in the TCC meeting

Member Secretary, ERPC briefly outlined the history of coal allocation vis-à-vis various stages/units of Kahalgaon STPS. Member States were generally of the opinion that coal allocated for Kahalgaon Unit 1 to 6 should not be diverted to Kahalgaon Unit-7. In view of complexity of the issue, TCC empowered Member Secretary, ERPC to have further deliberation on the issue with a small group comprising of BSEB, JSEB and NTPC after the TCC meeting. The outcome of this deliberation would be placed in the ERPC meeting.

ITEM NO. C.2: SPECIAL PROTECTION SCHEME (SPS) FOR ER GRID

– Agenda submitted by ERLDC

In the last ERPC meeting, ERLDC pointed out several flow-gate constraints in Eastern Regions and sought approval of ERPC for designing “Special Protection Schemes” (SPS) to ensure safe and secure operation of the grid. ERPC approved “in principle” the ERLDC proposal for schemes whose estimated cost is upto Rs. 1 Crore.

Subsequently, in the 54th OCC meeting, ERLDC came up with some system protection schemes (SPS) for each of these corridors (details in **Annexure–I**). Constituents were requested to go through the schemes and furnish their feedbacks in the next Protection sub-Committee meeting.

Meanwhile, CERC has constituted **Power System Development Fund (PSDF)** and the cost of such SPSs could be funded from PSDF. Accordingly, ERLDC requested in-principle approval of the above SPSs so that same could be forwarded to the Managing Committee on PSDF.

Since SPS at Talcher for Talcher-Kolar HVDC is already in place, Members accorded “in principle” approval for the rest SPSs and referred the matter to TCC/ERPC for concurrence.

Only ERPC approved schemes shall be considered by Task Force of CERC for disbursement from PSDF.

The schemes as envisaged are placed before TCC / ERPC for its consideration and approval.

Deliberation in the TCC meeting

Apart from above SPS, ERLDC opined that each IPP should also come up with their SPSs (to be funded by IPP) to ensure grid security. ERLDC expressed that logic of SPS could be finalized later on, and requested members to give in-principle approval so that task force on PSDF could be approached.

Member Secretary, ERPC stated that PSDF fund would be operated region-wise and suggested that all schemes forwarded to PSDF should be firm. Members agreed with him and referred this to Protection sub-Committee of ERPC.

ITEM NO. C.3: STATIC VAR COMPENSATION (SVC) AT JEYPORE

– Agenda submitted by ERLDC

Due to low short circuit level at Jeypore prevailing during low hydro season, the voltages of Jeypore and Indravati fluctuate over a wide range accompanied by oscillations, due to any change of power order of HVDC Gajuwaka and consequent switching in / out of filter banks. Installing an SVC at Jeypore would help in providing voltage support, including dynamic voltage support. The damping controller of SVC can also help in case inter-area oscillations occur during heavy loading condition in South Orissa and significant export to SR and vastly improve dynamic performance during faults.

In the 54th OCC meeting, ERLDC informed that the proposal for meeting the installation cost of such SVC from PSDF would be forwarded to the task force on PSDF. OCC members accorded in-principle approval for the above and referred to TCC/ERPC for further action.

Only ERPC approved schemes shall be considered by Task Force of CERC for disbursement from PSDF.

The proposal is placed before TCC / ERPC for its consideration and approval.

Deliberation in the meeting

Apart from above, ERLDC also suggested that keeping in view of various IPPs coming in Southern Orissa, SVC at Chaibasa would be required. CTU informed that SVC at Jeypore along with its size and space requirement would be taken up on first priority and would be discussed in next Standing Committee meeting.

Members decided to refer the issue of SVC at Jeypore and Chaibasa to next Standing Committee.

**ITEM NO. C.4: WORKSHOP ON BLACK START AND RESTORATION
– Agenda submitted by ERLDC**

With the rapid expansion of the New Grid in terms of capacity and network addition, it is extremely essential that available black start and restoration facilities be reviewed periodically and restoration procedures updated in consultation with beneficiary constituents and generators and transmission licensees.

Conducting workshops on Restoration procedures and Black start facilities with an objective of regular review of the procedure and familiarization for SLDC operators, generators and other licensees as mandated in IEGC is one of the important functions to be discharged by RLDCs. In line with that, ERLDC in the 54th OCC meeting proposed conducting 6 Nos. of such workshops at an estimated cost of Rs. 1.5 lakhs per workshops.

Earlier, all such workshops were funded from Reactive pool fund. However, now all pool funds are being diverted to PSDF. Accordingly, ERLDC requested in-principle approval of the above workshops so that same could be forwarded to task force on PSDF. Members agreed with the requirement of the above workshops and referred the matter to TCC/ERPC for concurrence.

Only ERPC approved schemes shall be considered by Task Force of CERC for disbursement from PSDF.

The proposal is placed before TCC / ERPC for its consideration and approval.

Deliberation in the TCC meeting

TCC recommended the ERLDC proposal to ERPC for approval of 6 nos. workshops at an estimated cost of Rs.1.5 lakh per work shop totalling Rs.9 lakh..

ITEM NO. C.5: DECLARATION OF EVACUATION LINES OF TENUGHAT POWER STATION AS ASSOCIATED TRANSMISSION SYSTEM (ATS)

In case of Tenughat TPS, for historical reasons, its evacuation lines [400 kV Tenughat-Biharshariff and 400 kV Tenughat-Patratu (both circuits charged at 220 kV) lines] are being owned by BSEB and JSEB.

Presently both BSEB and JSEB are efficiently maintaining these lines. However, if the onus of O&M lies upon TVNL (by declaring ATS), then it will offer an opportunity for getting them maintained at competitive prices from JSEB, BSEB, Powergrid or any other party. Incidentally, it will also avoid co-ordination between different agencies for maintenance of lines.

In the 51st OCC meeting, Member Secretary, ERPC had originally proposed to declare these two lines as Associated Transmission System (ATS) of the Tenughat Power Station and members agreed to discuss this issue in TCC/ERPC for taking a formal decision in this regard.

Subsequently a detailed note in support of getting the two lines declared as ATS of Tenughat TPS was addressed to Chairman, BSEB, Chairman, JSEB and MD, TVNL for examination. In the 54th OCC meeting, BSEB informed that the matter was under scrutiny.

Members may discuss.

Deliberation in the meeting

The decision in regard to declaration of ATS is deferred for the time being. TVNL informed that order for 400 kV substation at Tenughat is placed to PGCIL by TVNL. PGCIL was requested, if order already placed by TVNL, to expedite construction of 400 kV substation at Tenughat.

**ITEM NO.C6 : COMMISSIONING OF 2 NOS 50MVAR LINE REACTORS AS BUS REACTOR AT MAITHON S/STN
– Agenda submitted by POWERGRID**

Maithon 400kV sub-station of Powergrid is connected with 400kV Ranchi, Kahalgaon STPS, Mejia STPS and Jamshedpur S/S with D/C lines with only one no 50MVAR bus reactor. The drawing of power from Maithon sub-station by DVC at 220kv level is only around 150-200MW. Even after keeping one circuit of 400kV Ranchi-Maithon off, the 400kV voltage at Maithon frequently hovers around 435 posing stress and system disturbance.

400KV Maithon – Gaya D/C line is being constructed by POWERGRID under DVC main project with 50MVAR Line Reactor in each circuit. However, the commissioning of the said line will be delayed considerably due to forest clearance. In the mean time, 02 nos 50MVAR line reactors of the said line, have arrived at site.

Proposal : It is proposed that these 02 nos 50MVAR reactors may be installed & commissioned as Bus Reactor at Maithon Sub-station to contain the voltage problems. **Till commissioning of Gaya line, the Reactors shall be treated as elements (BR) as part of Eastern Regional Pool.**

After completion of the said line (Maithon – Gaya D/C line), these Reactors will be commissioned along with the line as a Line Reactors.

The above contingency arrangement along with the commercial agreement for tariff may be deliberated for resolution.

Members may discuss.

Deliberation in the TCC meeting

Members agreed with the technical requirement. However, the regarding cost sharing the issue would be further deliberated in the ERPC meeting.

ITEM NO.C7: HIGHLIGHTS OF GRID PERFORMANCE

7.1 FREQUENCY :

Frequency profile for the months of April'10 to August'10 is shown below:

Months	% of time of the month frequency remained			Average Frequency (Hz)
	<49.2 Hz	49.2 to 50.3 Hz (IEGC Band)	> 50.3 Hz	
April'10	38.26	61.68	0.06	49.30
May'10	2.06	94.10	3.84	49.77
	<49.5 Hz	49.5 to 50.2 Hz (IEGC Band)	> 50.2 Hz	
	June'10	5.74	89.83	
July'10	10.58	84.09	5.33	49.82
August'10	7.91	87.50	4.59	49.86

From the above table it may be observed that:

- Frequency profile in the IEGC band (i.e. 49.2 to 50.3 Hz) declined significantly during April'10. The frequency (below 49.2 Hz) remained as high as 38.26%, whereas the average frequency was at 49.30 Hz. The frequency profile was shown improvement from May'10 onwards.
- With the change of IEGC frequency band between 49.5 to 50.2 Hz. from June'10 onwards, the average frequency remained in between 49.82 to 49.86 Hz.

7.2: PERFORMANCE REVIEW (YOY COMPARISON)

Description	Average (MU) / Month			August'09	August'10	% change
	April'09 to August'09	April'10 to August'10	% change			
Net Generation (MU)/Month	7832	8456	8.0	8257	8911	7.9
Net Central Sector Thermal Generation (MU)/Month	2184	2392	9.5	1786	2346	31.3
Import from CPPs (MU)/Month	260	469	80.2	223	449	101.6
ER Consumption (MU)/Month	7099	7644	7.7	7342	8095	10.2

Description	Average (MU) / Month			August'09	August'10	% change
	April'09 to August'09	April'10 to August'10	% change			
Net Export to Outside Region (MU/Month) including transmission loss	992	1281	29.1	1138	1265	11.2
Regional Peak Demand Met (MW)	12088	12680	4.9	12088	12680	4.9
Peak Export (MW)	3507	3673	4.7	3195	3660	14.6

Generation/ Demand/ Export:

During the period from April'10 to August'10 as compared with the corresponding period of previous year (i.e. April'09 to August'09)

- Net average generation/month increased considerably (8 %)
- Net Central Sector Thermal Generation/month has increased by 9.5%
- Availability/month from CPPs has increased significantly
- Energy consumption/month in ER has increased by 7.7%
- Net Export from ER to other regions increased by 29.1%
- Regional Peak Demand met increased by 4.9%

7.3: CONSTITUENTWISE REQUIREMENT (MU/DAY) & PEAK DEMAND MET (MW) DURING JULY AND AUGUST'10

SYSTEM	REQUIREMENT MET (MU/ DAY)		PEAK DEMAND MET (MW)	
	JULY'10	AUGUST'10	JULY'10	AUGUST'10
BSEB	31.81	31.66	1489	1495
JSEB	16.27	16.88	858	1012
DVC	42.48	40.99	2046	1834
ORISSA	62.58	62.64	3183	3169
WBSEDCL	69.23	75.55	3950	4338
CESC	28.99	29.2	1549	1601
DPL	4.58	4.57	234	232
SIKKIM	0.7	0.83	73	79
Region	256.65	262.32	12361	12680

7.4 MONTHLY AND CUMULATIVE EXPORT OF POWER FROM ER (BASED ON SEM FIGURES)

Table: 1 (A) EXPORT FROM ER

Region	Export in MU		Export in MU		% Growth in Export *	
	During August'10	Cumulative (April'10 to August'10)	During August'09	Cumulative (April,09 to August'09)	During August'10	Cumulative (April'10 to August'10)
NR	1770.7	6951.96	1814.28	5915.73	-2.4	17.5
WR	0	18.73	0	0	NA	N.A
SR	0	670.42	0	721.52	-19.8	-7.1

NER	0	204.01	0	228.19	-24.9	-10.6
TOTAL	1770.7	7845.12	1814.28	6865.44	-2.4	14.3

B) IMPORT TO ER

Region	Import in MU		Import in MU		% Growth *	
	During August'10	Cumulative (April'10 to August'10)	During August'09	Cumulative (April,09 to August'09)	During August'10	Cumulative (April'10 to August'10)
NR	0	0	0	0	NA	NA
WR	349.7	952.39	211.38	1043.41	65.4	-8.7
SR	130.34	547.65	404.4	911.88	-67.8	-39.9
NER	76.16	159.46	123.47	155.15	-38.3	02.8
TOTAL	556.2	1659.5	739.25	2110.44	-24.8	-21.4
Net Export from ER	1214.5	6185.62	1075.03	4755	13.0	30.1

* As compared to similar period of last year. NA – Not Applicable.

During the period under review i.e., April'10 to August'10, the net export from Eastern Region was 6185.62 MU as compared to 4755 MU in the corresponding period of previous year, showing an improvement of 30.1%. During this period (i.e April'10 to August'10), NR drew 6952MU whereas, WR injected 933 MU to ER.

Important Development:

1. 400 kV Barh-Balia D/C (Quad) transmission line test charged on 30.06.10
2. 220 kV Maithon-Kalyaneshwari ckt. III & IV charged on 20.07.10
3. An expert group headed by General Manager, ERLDC has been constituted to look into the grid disturbance in CESC system on 01.07.2010 in the 53rd OCC meeting. The expert group met on 20.08.2010 & 15.09.2010 at ERLDC, Kolkata and CESC office respectively. The report is expected to be submitted in October, 2010.
4. Black start operation of Maithon Hydro units (3x20MW) was carried out on 27.07.2010 as per decision in the 52nd OCC meeting.
5. 1st unit (600MW) of M/s. Sterlite Ltd. got synchronised with Orissa system on 10.08.2010.

Deliberation in the TCC meeting

Members noted.

ITEM NO.C8 : VOLTAGE COLLAPSE PREDICTION RELAY - Agenda submitted by ERLDC

With growing size and complexity of the grid, stability aspects of integrated grid now a days is of utmost importance. The issue of system collapse prediction and related technological innovation was taken up during the last Protection Committee meeting held on 12th Aug,2010 at ERPC , Kolkata when M/s A.Eberle gave a detailed presentation on the issue.

Most of the large power systems in the world have an experience one time or other collapse due to stability aspects and some of these collapses are characterized by the

phenomenon such as low frequency oscillation (Smaller signal stability) voltage collapse (slow and fast). The relevance of such phenomenon to large grids at present is due to pressure from Market operation and the requirement of grid operators to operate power system close to the limits. At times due to non-availability of certain transmission elements (transmission depletion) and violation of TTC, the grid may operate under stressed condition where the network damping would be very low. This stressed condition if subjected to further overloadings or trippings may lead to stability problems such as voltage collapse. For analysing the stability aspect, frequency domain and time domain matters are usually enabled by the power system analysts. The frequency domain techniques have an advantage of indicating the degree of stability or margin of stability and the availability or lack of damping and its measures. The frequency damping techniques employ eigen value analysis for determination of the above. The time domain techniques determine the stability or instability but not the degree of stability. Therefore, for power system planners and system operators in pre-despatch are just before real time operation. The degree of stability, possible low frequency modes and the degree of damping to each of these modes so that the operators can prepare operational and contingency plans. Some of the new stability techniques like Lyapunov exponent) are based on energy functions and the sign of Lyapunov exponent determines whether the same system is stable or not stable. The energy functions based techniques can be used for fast and ‘On line’ computation of stability determination in case of assessment of voltage collapse aspects like determination of Nose point and its distance from operating point. This can be done effectively by tracking of eigen values and determination of HoPF bifurcation point.

Analysis of frequency spectrum in the frequency range of 0.01 to 98 Hz. through spectral analysis would clearly indicate several modes - local, intra-area, inter-area, sub-synchronous and super-synchronous. The damping of low frequency oscillation was found to most suitable through load dumping as compared to PSS training, dumping through several controllers associated with HVDC, TCSC and other FACT devices. It was also established that the load dumping as a counter measure to damp out the low frequency Oscillations (0.1 to 1.2 Hz.) using measurement was established and found to be highly preferable. Incidentally, CPR-D/CPSYS relay of M/s. A.Eberle provides the following applications in the context of the aforesaid aspects:

1. All the modes in the range of 0.012 to 98 Hz. Therefore spectral analysis and measurement of degree of dumping to each of these modes.
2. Calculation of Lyapunov exponent stability and stability limits.
3. Tracking of eigen values and determination of HoPF bifurcation point for determining the voltage collapse
4. Using of Spectral wavelet-analysis instead of DFT to meet the requirement of non-linear analysis as required by real life power systems.
5. Measurement of Frequency (F) and rate of change of frequency (df/dt) with high degree of resolution.
6. Incorporation of Fault Recorder functions.
7. Ability to communicate with and transfer data to SCADA system.

Further, the application of synchrophasor technology using PMUs and application of CPSys-CPR-D/DMR-D relay of M/s. A.Eberle would complement each other. M/s. A.Eberle relays would alert about the state of the present system and degree of stability, damping etc. to enable the operator about the impending contingencies. The PMUs record system parameters after the initiation of the disturbance and operator can

response. In case the operator response is fast enough w.r.t. the power system phenomenon

The issues were deliberated by the Protection Committee members during its meeting on 12.8.10 and it was decided to procure about 10 Nos. of Relays of M/s. A.Eberle for the entire ER grid to be deployed at strategic locations alongwith interfacing of the data to SCADA system. The availability of frequency & rate of change of frequency with high accuracy from different (10 locations) points of the grid would enable better analysis of grid disturbances and tuning of AFLUs.

The proposal is put up to TCC/ERPC for its consideration whether or not to accord the approval and for taking up with Task Force of CERC for funding from the PSDF.

Deliberation in the TCC meeting

ERLDC proposed procurement of 10 nos. relay at an estimated cost of Rs.30 lakh per relay totalling Rs.300 lakh. TCC recommended to ERPC for approval of procurement of voltage collapse prediction relays by utilizing the fund from PSDF.

**ITEM NO.C9: NOMINATION FOR SCADA COORDINATORS
- Agenda submitted by ERLDC**

During the 7th SCADA O & M meeting held at ERLDC ,Kolkata on 16th June,10, it was felt that SCADA data availability can be improved by providing a better coordination with the concerned sites. To achieve this, it was decided that all constituents will provide a list of site-wise coordinators for all RTU locations, wide band locations and control centres within their respective area of responsibility by 30th June,2010. Subsequently a letter to this effect, was sent to all SLDC heads with a copy to heads of respective constituents. The issue was further discussed in the 54th OCC meeting wherein all the constituents agreed to respond immediately in view of the requirement of implementing EMS at all SLDCs. The proposed list of coordinators has been received from some of the constituents. **Members may deliberate for directing all concerned for nominating the SCADA coordinators.**

Deliberation in the meeting

In the meeting, some constituents confirmed that they had already forwarded the names of the nominated coordinators. Others agreed to furnish it within 15th October 2010.

ITEM NO.C10: SPLIT BUS ARRANGEMENT FOR 220KV BUDHIPADAR BUS I & II TO FACILITATE EVACUATION OF POWER FROM M/S. STERLITE ENERGY LTD. -Agenda submitted by OPTCL

OPTCL vide their letter dated 08.09.2010 intimated that 1st unit (600MW) of M/s Sterlite has been synchronised in Orissa system and Gridco is to receive its state share of entire power. In order to facilitate the power evacuation from M/s Sterlite and M/s Vedanta at Budhipadar 220kV sub-station, it is proposed to make suitable split bus arrangement at Budhipadar 220kV sub-station as detailed below:

Budhipadar 220kV S/stn.	220kV Bus-I	220kV Bus-II
Name of the feeders	2x210MW IB TPS Q/C 220kV Korba D/C 220kV Raigarh S/C 220kV Katapalli D/C	220 kV Tarkera D/C 220 kV Vedanta D/C 2x160MVA 220/132kV ATRs

	220kV Bhusan Steel S/C 220kV SPS S/C	
--	---	--

With the above arrangement 540MW power from M/s Sterlite energy and M/s Vedanta can be evacuated without any evacuation constraint even in peak load low hydro scenario.

This arrangement will be a temporary in nature and will continue till connectivity of 400kV M/s Sterlite transmission line is in place with LILO of 400kV Rourkela –Raigarh / Raipur D/C line between ER & WR.

OPTCL may elaborate and members may discuss.

Deliberation in the meeting

TCC referred the matter to OCC for further deliberation.

COMMERCIAL MATTERS

ITEM NO.C11: PAYMENT OF UI -- PRESENT STATUS

The status of UI payment as on 27.08.2010 for bills upto 15.08.2010 is enclosed at **Annexure-II** and the status of UI payment for the bills upto 28.03.2010 (2009-10) is enclosed at **Annexure-III**

This is for the information of the members.

It is seen that as per figures submitted by ERLDC, the total amount payable by BSEB (including principal and interest) is around Rs.60.26 crores, the details of which is given below :-

Constituent	Figures in Rs. Crores						Grand Total
	2009-10		2010-11		Total		
	Principal	Interest	Principal	Interest	Principal	Interest	
BSEB	61.57	9.94	(-) 11.98	0.7331	49.59	10.67	60.26

BSEB is requested to confirm their payment plan.

Deliberation in the TCC meeting

Members noted. BSEB informed in the meeting that sincere efforts are being made to liquidate the outstanding dues.

ITEM NO.C12: REACTIVE ENERGY POOL ACCOUNT -- STATUS AS ON 24.08.2010 (BILLS UPTO 15.08.2010)

The updated position of Receipt/Payment of Reactive Energy Charges in the pool as on 31.08.2010 considering bill up to 15.08.2010 is indicated in **Annexure -IV**

Following are the outstanding amount receivable on account of Reactive Energy Charge

BSEB : Rs. 2,84,950
WBSETCL: Rs.12,73,089

BSEB and WBSETCL may expedite payment of the outstanding Reactive Energy charge. The available balance in the Reactive pool fund is Rs. 1,30,09,849

Members may please note.

Deliberation in the TCC meeting

Members noted. Further, BSEB and WBSETCL both agreed to liquidate the outstanding reactive energy charges.

ITEM NO.C13: 'IRE POOL' ACCOUNT OF ER WITH SR – PRESENT STATUS

As informed by ERLDC, settlement of IRE account with SR has taken place till 52nd Week of 2009-10 i.e up to 28.03.10 and an amount of **Rs.56.86 Crores** has been disbursed to POWERGRID for giving transmission benefits to ER Beneficiaries. Enclosed statement at **Annexure – V** shows the details of IRE disbursements and the transmission benefit given to ER beneficiaries. **Rs.32.01 Crores** (IRE amount of BSEB) has been adjusted with the outstanding UI dues of BSEB for 2009-10 after getting consent from BSEB.

The net IRE amount to be paid to SR towards ER-SR exchange of power upto 5th week of 2010-11 is **Rs.137.39784 lakhs**.

This is for information of the members.

Deliberation in the TCC meeting

Members noted.

ITEM NO.C14: POOL BALANCE DUE TO CAPPING OF NTPC STATIONS IN ER / ADDITIONAL UI CHARGE

As informed by ERLDC, the details of Pool Balance due to capping and additional UI charge are enclosed in **Annexure- VI**. The total amount of **Rs 164.79 Crores** is available as capped amount as on date.

Moreover, an amount of **Rs 38.37 Crores & Rs. 9.93 Crores** have been kept as additional UI charge for the year 2009-10 & 2010-11 respectively. Thus total amount of **Rs 48.29 Crores** is also available as additional UI charge as on date.

This is for information of the members.

Deliberation in the TCC meeting

Members noted.

ITEM NO.C15: OPENING OF LC BY ER CONSTITUENTS FOR UI PAYMENTS

As per the Unscheduled Interchange charges and related matters (Amendment) Regulations, 2010 issued by CERC vide notification No. L-1(1)/2009-CERC dated 28th April, 2010 (effective from 03.05.10)

Quote

All regional entities which had at any time during the previous financial year failed to make payment of Unscheduled Interchange charges

including Additional Unscheduled Interchange charges within the time specified in this regulations shall be required to open a Letter of Credit (LC) equal 110% of its average payable weekly UI liability 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 matter of opening of LC by various constituents has already been discussed in 13th Commercial Committee meeting held on 26.05.10 at ERPC, Kolkata wherein it was decided that LC will have to be opened immediately. Only GRIDCO has intimated that they have opened LC. BSEB, JSEB, WBSETCL & Sikkim had not yet opened LC. The request of DVC for opening of LC has been examined at ERLDC and they do not require to open LC. The status report for opening of LC is being forwarded to CERC on monthly basis (**Annexure – VII**).

In the 14th Commercial Committee meeting held on 10.09.2010, ERLDC requested BSEB, JSEB, WBSETCL and Sikkim to expedite the process of opening of LC as per the Unscheduled Interchange Charges and Related Matters (Amendment) Regulation 2010 issued by CERC.

BSEB, JSEB, WBSETCL and Sikkim are requested to intimate the latest status.

Deliberation in the TCC meeting

In the meeting, the concerned members indicated that they had already initiated the necessary processes for opening of LC.

**ITEM NO.C16: CERC REGULATIONS ON ‘SHARING OF ISTS CHARGES AND LOSSES-2010’ - Furnishing of data by DICs
- Agenda submitted by ERLDC**

The regulations on ‘ Sharing of Interstate transmission charges and losses-2010’ has been notified by CERC and would be effective w.e.f. 01.01.2011. As per the above regulations and subsequent meeting of Implementation Committee held on 27/07/10 at NLDC, New Delhi, DICs are to furnish the following data as per the timelines mentioned below:

Sl. No.	Details	Timeline
1	Basic Network data	First fortnight of September,2010
2	Details of Non-ISTS lines approved by RPC as being used as ISTS Lines/ Deemed ISTS	First fortnight of October,2010
3	Injection and withdrawal forecast	Second Fortnight of November,2010

The detailed formats for data submission are available on the website of NLDC in MS-Excel format and may be downloaded from the link: www.nldc.in/IA.aspx

Filled up formats are to be sent vide E-mail to NLDC (implementingagency@powergridindia.com) with copy to ERLDC (psdas_psd@yahoo.com). Data may also be submitted by CD to ERLDC. A written confirmation regarding furnishing of data is to be sent to RLDC/NLDC. In case of any difficulty Nodal officer of ERLDC [Sh.P.S.Das, Email: psdas_psd@yahoo.com, Mob: 9433041837] may be contacted.

Also details of Nodal officers except WBSETCL, have not been received from all the DICs and the same needs to be submitted by the DICs at the earliest. The implementation plan as finalized in the implementation committee meeting is enclosed at **Annexure-VIII**.

TCC members may kindly deliberate regarding furnishing of the required data at the earliest besides nomination of the nodal officer alongwith details as E_mail address, Contact No.(Mobile & Landline).

Deliberation in the TCC meeting

In the meeting, GM, ERLDC informed the following schedule of submission of necessary data vide email:

Sikkim: 1st Oct. 2010, DVC: 4th Oct. 2010, JSEB: 5th Oct. 2010, BSEB: 6th Oct. 2010, OPTCL: 7th Oct. 2010 and WBSETCL: 8th Oct. 2010.

Members agreed to furnish the same within the stipulated date.

ITEM NO.C17: LESS REGISTRATION OF 132 KV MHS-JAMTARA TIE FLOW FROM 23.09.2007 TO 03.12.2007- Agenda submitted by DVC

The Chief Engineer(CLD), DVC, Maithon vide his letter dated 07-12-07 with a copy to ERPC & ERLDC brought to the notice regarding less registration of 132KV MHS-Jamtara tie flow for Sept'07, Oct'07 & Nov'07. The problem was detected due to the trouble in 132KV "R" phase metering CT at DVC MHS end and therefore export of power in MW & MWH in 15 minutes time interval was not recorded properly from 23rd Sept to 3rd Dec'07.

Subsequently, all the relevant data like half hourly /hourly tie flow reading and daily 24 hrs. consumption in MWH through 132 KV MHS-Jamtara tie were sought from Assistant Executive Engineer, Transmission Sub-Division, JSEB, Jamtara vide letter dated 10-01-08 with a copy to ERPC & ERLDC. Assistant Executive Engineer, Transmission Sub-Division, JSEB, Jamtara vide letter dated 31-01-08 submitted the data but the same were incomplete, inadequate & irrelevant and therefore the CE(CLD), DVC proposed to recalculate the UI account with average monthly MWH data which were jointly signed by DVC & JSEB. DVC vide letter dated 25-03-08 proposed ERPC to consider views of CE(CLD), DVC.

ERPC vide letter dated 02/03-04-08 informed that during the period from 23-09-07 to 03-12-07, SEM data for the said 132KV Maithon(DVC)-Jamtara (JSEB) were received by ERPC from ERLDC and UI account has been issued by ERPC accordingly.

DVC in its letter dated 02-05-08 to ERPC pleaded that the similar problem arisen due to defective meter reading was settled earlier between the ER constituents in ERPC forum. Moreover, such type of defective metering could not be detected immediately as both DVC TVM & ABT SEM at Maithon Hydel station showed identical low registration. DVC requested ERPC to reconsider the case and act as a mediator for amicable settlement.

ERPC vide its letter dated 16-05-08 again reiterated that there was no deviation in energy calculation by ERPC and ERLDC with respect to DVC system 15 minutes block wise daily for the period from 01-09-07 to 15-12-07 and advised DVC to refer the case to ERLDC for their observation.

Accordingly, DVC vide letter dated 09-06-08 and followed by letter dated 04-02-09 requested ERLDC to communicate their views so that the same may be deliberated as an agenda in the commercial committee meeting for amicable settlement.

Finally ERPC vide letter dated 11-02-09 conveyed their decision that same may be deliberated as an agenda in the forthcoming commercial sub committee meeting.

The matter was put as an agenda in 9th Commercial Committee meeting held on 23-03-09 where Member Secretary, ERPC advised both JSEB & DVC to settle the matter first between JSEB & DVC for acceptance of MWH data for UI settlement for the period from 23-09-07 to 03-12-07 mutually. Since then DVC made various correspondence with JSEB to settle the issue but in vain.

The matter was again put as an agenda in the 10th commercial Committee meeting held on 25-06-09. There again Member Secretary, ERPC advised both JSEB & DVC to settle the issue mutually. This time all the relevant data both in hard copy and soft copy along with the copy of past correspondences were handed over to the representative of JSEB, Mr. Sudhansu Kumar, SE(E) in the same meeting.

Again in its letter dated 15-10-09 with a copy to ERPC, DVC requested JSEB to arrange a meeting in presence of ERPC for settling the issue at the earliest. No response whatsoever has been received by DVC as on date.

The matter was deliberated again in the 12th Sub Commercial meeting held on 11-03-10. There it was decided as follows:

“In the meeting JSEB & DVC decided to settle the issue bilaterally before the forthcoming TCC & RPC meeting. JSEB suggested a meeting between JSEB & DVC on 16-03-10. DVC would confirm the acceptability of the date to JSEB under the intimation to ERPC for settlement of the issue.”

Subsequently, JSEB was informed regarding the acceptance of the date by DVC and was requested to arrange the meeting on 16-03-10 through the letter dated 12-03-10. But the letter was unanswered. In absence of response, JSEB was further requested over phone to fix a suitable date so that meeting may be arranged with an intimation to ERPC. But no date was confirmed.

Since the matter was long pending, DVC requested JSEB to give their consent for accepting the average MWH reading during that period which is the only option left before both the parties for settling this long pending issue.

JSEB is requested to give their opinion.

Deliberation in the TCC meeting

On suggestion of Member Secretary, ERPC, JSEB and DVC agreed to hold a joint meeting at ERPC to settle the issue.

ITEM NO.C18: EASTERN REGIONAL POWER COMMITTEE (CONDUCT OF BUSINESS) RULES, 2006 – AMENDMENT

The Eastern Regional Power Committee (Conduct of Business) Rules, 2006 (CBR) in vogue was adopted in the 1st ERPC meeting held on 25th May,2006. Now need is being felt to amend this CBR to align itself with various new regulations, functions etc. The Secretariat vide its letter dated 17.09.2010 had circulated the amended CBR to TCC members for kind perusal.

Two new chapters, Chapter-VI & VII have been incorporated in the CBR under the title (i) ERPC ESTABLISHMENT FUND & ERPC FUND and (ii) MEETING EXPENSES respectively.

Members may discuss and recommend their views for consideration of ERPC.

Deliberation in the TCC meeting

Referred to ERPC for deliberation.

PART –D : ISSUES RELATED TO STANDING COMMITTEE MEETING ON POWER SYSTEM PLANNING IN EASTERN REGION

The Standing Committee meeting on Power System planning in Eastern Region is scheduled to be held on 20.09.2010 at NRPC, Conference Hall, New Delhi-110016. The agenda note of the above meeting has already been posted in CEA website: cea.nic.in on 17.08.2010, which may be referred to each of the respective agenda items. The outcome of this meeting shall be circulated before the TCC meeting for further discussion.

ITEM NO.D1: CEA AGENDA ITEM NO.2.0 : Establishment of New 400 kV sub-station at Jamshedpur of DVC and LILO of one ckt of 400kV Jamshedpur-Baripada D/C line at Jamshedpur S/S (DVC) in lieu of LILO of one ckt. of 400 kV Parulia-Jamshedpur D/C line

ITEM NO.D2: CEA AGENDA ITEM NO.3.0 : Contingency arrangement for start-up power for 2x500MW Durgapur STPP(Andal) of DVC

ITEM NO.D3: CEA AGENDA ITEM NO.4.0 : Extension of 400kV Jamshedpur S/S (DVC) to facilitate power evacuation from 2x270MW Adhunik TPS (IPP) in Jharkhand

ITEM NO.D4: CEA AGENDA ITEM NO.5.0 : ATS for Nabinagar-II TPS (3x660 MW).

ITEM NO.D5: CEA AGENDA ITEM NO.6.0 : Transmission System for IPP Generation Projects in Jharkhand, West Bengal and Orissa

ITEM NO.D6: CEA AGENDA ITEM NO.6.1 : IPPs in Jharkhand & West Bengal and ATS:

ITEM NO.D7: CEA AGENDA ITEM NO.6.1.1 : Immediate evacuation system for Adhunik, Corporate, Essar and Corporate Phase-I generation projects (under the Scope of Generation Developer)

ITEM NO.D8: CEA AGENDA ITEM NO.6.1.2 : Common system strengthening for transfer of power from Phase-I generation projects in Jharkhand and West Bengal to NR/WR (Under the scope of PGCIL)

I Common system strengthening for transfer of power from Phase-I generation projects in Jharkhand and West Bengal - Part-A :

II. Common system strengthening for transfer of power from Phase-I generation projects in Jharkhand and West Bengal - Part-B :

III. Private Sector line: *In addition to the above work to be undertaken by PGCIL, Dharamjaygarh – Jabalpur 765kV D/C line (2nd line) would be under the scope of private sector. Associated 765kV line bays at Dharamjaygarh and Jabalpur sub-station would be under the scope of POWERGRID.*

ITEM NO.D9: CEA AGENDA ITEM NO.6.2 : Phase-I IPPs in Orissa & ATS:

6.2.1 Transmission System : (Under the Scope of Generation Developer)

- A. ATS planned Upto Pooling Station at Jharsuguda**
- B. ATS planned Upto Pooling Station at Angul**

**6.2.2 Transmission System for Phase-1 generation projects in Orissa:
(Under the Scope of PGCIL)**

- I. Transmission System for Phase-1 generation projects in Orissa - Part-A**
- II. Transmission System for Phase-1 generation projects in Orissa - Part-B**
- III. Transmission System for Phase-1 generation projects in Orissa - Part-C**
- IV. Transmission System for Phase-1 generation projects in Orissa - Part-D
(under Private Sector)**

ITEM NO.D10: CEA AGENDA ITEM NO.7.0 ATS for power evacuation from Phase-I generation projects in Sikkim/Bhutan:

**7.1 Project specific revised dedicated transmission system:
(under the scope of Generation Project Developers)**

- A. Upto Pooling Station at New Melli/ Kishanganj / Mangan# (proposed at a later date)**
- B. Upto Pooling Station at Rangpo**

**7.2 Revised ATS for HEPs in Sikkim/ Bhutan:
(under the scope of PGCIL)**

7.2.1 Under the scope of Part-A work

7.2.2 Under the scope of Part-B work,

7.2.3 Under the scope of Part-C work,

7.2.4 In accordance with the above proposals, the revised scope of work under Part-A, Part-B & Part-C would be as following:

**Part – A: Transmission System for development of pooling station at Kishanganj and associated transmission works (under the Scope of PGCIL)
(By 2011-12, for evacuation of 1300 MW from Sikkim)**

Part – B: Transmission System for development of pooling substations within Sikkim and transfer of power to a new pooling station Kishanganj in northern Part of West Bengal/Bihar (under the Scope of PGCIL) (By 2012-13, when additional 1100MW materializes in Sikkim)

Part-C: Transmission System for development for power transfer from Bhutan to NR/WR (under the Scope of PGCIL) (By 2014-15, when Punatsangchu-I (1200MW) comes up in Bhutan)

ITEM NO.D11: CEA AGENDA ITEM NO.8.0 : Interim Arrangement for evacuation of power from Teesta-III HEP (1200MW) being developed by Teesta Urja Ltd.

ITEM NO.D12: CEA AGENDA ITEM NO.9.0 : Cross Border Transmission link between India and Bangladesh

ITEM NO.D13: CEA AGENDA ITEM NO.10.0 Proposal for LILO of one circuit of 765kV Talaiya UMPP-Balia D/C line at Gaya S/S as part of ATS for Talaiya UMPP (4000 MW) in Jharkhand

ITEM NO.D14: CEA AGENDA ITEM NO.11.0 : System Reinforcements in ER as a Eastern Regional System Strengthening Scheme:

(i) Additional Bus Reactor of 1x125 MVAR each at 400/220kV Patna & Ranchi Sub-stations of PGCIL.

(ii) Proposal of PGCIL for spare Transformers/Reactor to meet the needs of Member States.

(iii) Proposal for a new 400kV Farakka - Subhasgram D/C line with one circuit to be LILOed at Jeerat S/S

ITEM NO.D15: CEA AGENDA ITEM NO.12.0 : Proposal of ERPC for establishment of 400kV Gokarna-Binaguri or Gokarna - Malda –Purnea 400 kV D/C

ITEM NO.D16: CEA AGENDA ITEM NO.13.0 : Augmentation of 220/132 kV ICTs at Birpara, Siliguri and Malda S/Ss of PGCIL

ITEM NO.D17: CEA AGENDA ITEM NO.14.0 : Proposal of WBSETCL for Provision of two additional 220kV line bays at 400/220kV Alipurduar S/S of PGCIL for interconnection with the Alipurduar 132kV S/S (WBSETCL) being upgraded to 220kV

ITEM NO.D18: CEA AGENDA ITEM NO.15.0 : Proposal for establishment of 220kV D/C line from 400/220kV Jeypore(PG) S/S in ER to Jagdalpur in South Chattisgarh of WR for alternative supply to Jagdalpur area

ITEM NO.D19: CEA AGENDA ITEM NO.16.0 : Review of Progress on Earlier Agreed Transmission Schemes

Deliberation in the TCC meeting (Item no. D1 to D19)

Power grid made a presentation highlighting the discussions held in Standing Committee meeting on 20.09.10. Powergrid may make the presentation before ERPC for further deliberation.

ADDITIONAL AGENDA OF 15th TCC MEETING

ITEM No.E1: POWER SYSTEM DEVELOPMENT FUND – NOMINATION OF ERPC IN MANAGING COMMITTEE

Central Electricity Regulatory Commission vide no. L-1(1)/2009-CERC dated 28.04.2010 notified the Central Electricity Regulatory Commission (Unscheduled Interchange Charges and Related Matters) (Amendment) Regulations, 2010. In the regulation it has been specified that the amount left in the UI Pool account fund after final settlement of claims of Unscheduled Interchange Charges of the generating stations and beneficiaries shall be transferred to a separate fund as may be specified by the commission and shall be utilized with the prior approval of the commission for the activities specified in the regulation.

Subsequently, CERC vide no. L-7/14/2010/CERC dated 04.06.2010 notified Central Electricity Regulatory Commission (Power System Development Fund) Regulations 2010. Clause 3 of the above regulation reads as under :

Quote

3. Constitution of the Fund

(1) There shall be constituted a fund to be called the “Power System Development Fund” and there shall be credited thereto :-

(a) Congestion charges standing to the credit of the “Congestion Charge Account” after release of amounts payable to Regional Entities entitled to receive congestion charge along with interest, if any, in accordance with the Central Electricity Regulatory Commission (Measures to relieve congestion in real time operation) Regulations, 2009 as amended from time to time;

(b) Congestion amount arising from the difference in the market prices of different regions as a consequence of market splitting in power exchanges in accordance with Central Electricity Regulatory Commission (Power Market) Regulations, 2010;

(c) Unscheduled Interchange Charges standing to the credit of the “Unscheduled Interchange Pool Account Fund” after final settlement of claims of Unscheduled Interchange Charges in accordance with the Central Electricity Regulatory Commission (Unscheduled Interchange Charges and Related Matters) Regulations, 2009 as amended from time to time;

(d) RLDC Reactive Energy Charges standing to the credit of Reactive Energy Charges Account;

(e) Such other charges as may be notified by the Commission from time to time.

Unquote

Further, clause 7.1 of the above regulation reads as under :

Quote

7. Managing Committee

(1) A Managing Committee shall be appointed by the Commission for the administration of the Fund, consisting of the following members :-

- (i) Head of NLDC/Entity entrusted with the function of NLDC and RLDCs shall be designated by the Commission as the Chairperson of the Managing Committee;
- (ii) Representative of each of the Regional Power Committees (RPC);
- (iii) Representative of each of the RLDCs;
- (iv) An Officer of NLDC, not below the rank of General Manager, as nominated by the head of NLDC shall be the Member Convenor; and
- (v) Two independent external members nominated by the Commission and of whom one member, in the opinion of the Commission, shall have special knowledge or experience in the field of finance in the power sector and other member shall have the wide experience in the power sector.

Provided that appointment of the independent external members shall be subject to their acceptance of the nomination.

Unquote

CERC in its order dated 14.09.2010 appointed the Managing Committee for the Power System Development Fund as under :

Sl. No.	Position in the Managing Committee	Person Nominated
1.	Chairman of the Managing Committee	Shri S.K. Soonee, CEO, Power System Operation Corporation Ltd
2.	Representative of Regional Power Committee	An Officer of the level of General Manager or above to be nominated by each of the five Regional Power Committee (RPC) by 25 th September, 2010
3.	Representative of Regional Load Despatch Centre	(a) Shri V.K. Agarwal, G.M., Northern Regional Load Despatch Centre (b) Shri M.G. Raoot, E.D., Western Regional Load Despatch Centre (c) Shri P. Pentayya, G.M., Eastern Regional Load Despatch Centre (d) Shri P.R. Raghuram, G.M., Southern Regional Load Despatch Centre (e) Shri T.S. Singh, AGM (I/C), North-East Regional Load Despatch Centre
4.	Member Convenor	Shri V.V. Sharma, General Manager, National Load Despatch Centre
5.	Independent External Member (Finance)	Shri R. Balasubramanian, Ex-Executive Director (Finance), Neyveli Lignite Corporation Ltd, Neyveli. R/o: B-1, Indus Mahanadhi, 15, Kalamegam Street,

		East Tambaram, Chennai-600 059.
6.	Independent External Director (Power Sector Expert)	Shri M.M. Babu Narayanan, Additional Director, Central Power Research Institute, Bangalore.

As per Para 2 of the order, an Officer of the level of General Manager or above is to be nominated by each of the five Regional Power Committees by 25th September 2010 as representative of Regional Power Committee in the Managing Committee of the Fund.

In this context, prior to the formation of the Committee, the Task Force formed by the Commission to suggest the activities and projects for utilization of the fund had already held two meetings, first on 09.07.2010 at NLDC, New Delhi and the second on 09.08.2010 at CERC, New Delhi.

TCC may discuss and recommend to **ERPC the name of the suitable representative for representing Eastern Regional Power Committee in the Managing Committee of the Power System Development Fund.**

Deliberation in the TCC meeting

TCC referred to ERPC for nomination of ERPC in the managing Committee of PSDF.

ITEM NO. E2: FIBER OPTIC CONNECTIVITY TO THE UPCOMING SUBSTATIONS IN EASTERN REGION- AGENDA SUBMITTED BY POWERGRID

Powergrid submitted additional agenda (Copy at Annexure –E1) on the need for fiber optic connectivity to the upcoming substations in ER for smart grid implementation as well as WAMS technology. Total 1055 kms of OPGW connectivity is proposed at a cost of approx. Rs. 20 crore including communication equipments.

Gist of deliberation in the TCC meeting

TCC referred the issue to ERPC for deliberation.

ANNEXURE – A

LIST OF PARTICIPANTS IN THE 15TH ERPC MEETING

Date: 28.09.2010

Venue: Norbu Gang Resort, Pelling

Name of the Constituent / Organisation	Sl. No.	Name S/Shri	Designation	
WEST BENGAL A) WBSEDCL	1.	M.K. DE	Chairperson, ERPC & CMD, WBSEDCL & WBSETCL	
	2.	ANIRBAN GUHA	Director (R&T)	
	3.	M.S. PAL	Chief Engineer (PTR)	
	4.	P. BANERJEE	Divisional Engineer (ALDC)	
B) WBSETCL	5.	A.C. SARKAR	Director (Transmission)	
	6.	D. CHAKRABORTY	Chief Engineer, CPD	
	7.	A. KARMAKAR	Supdt. Engineer (E)	
C) WBPDCCL	8.	Dr. K. GUPTA	Managing Director	
	9.	R. BOSE	Director (O & M)	
	10.	A.K.GHOSHAL	Director (Projects)	
D) CESC	11.	B.B. CHAKRABORTY	Vice President (SO)	
	12.	R. CHAKRAVARTY	Sr. Manager	
BIHAR BSEB	13.	P.K. RAI	Chairman	
	14.	T.T. JHA	Member (Transmission)	
	15.	RAKESH	EEE /Interstate	
JHARKHAND JSEB	16.	C.S.GUPTA	Member (Technical)	
	17.	N.K. OJHA	EEE	
TVNL	18.	S. PANDEY	TS to General Manager	
ORISSA A) OPTCL & GRIDCO	19.	HEMANT SHARMA	Managing Director	
	20.	K.K. NATH	Director(Engineering)	
	B) OHPC	21.	D.K. SAHOO	Sr. General Manager
	C) GRIDCO	22.	A.C. MALLICK	Director (Commercial)
	23.	R.K.PRADHAN	T.A to Sr. General Manager (PP)	
	24.	S. PATAJOSHI	EA to Director (Comml)	
GOVT. OF SIKKIM	25.	PEMA WANGCHEN	PCE-cum-Secretary, Energy & Power Deptt.	
	26.	P.B. SUBBA	Chief Engineer	
	27.	S.P. KAZI	Addl. Chief Engineer	
	28.	R. GURUNG	Superintending Engineer (O & S)	
	29.	H.B. PRADHAN	Executive Engineer	
	30.	P.LEPCHA	Assistant Engineer	
	31.	H.BHUHI	Assistant Engineer EHV	
	32.	A. RAI	Assistant Engineer	
	33.	B. SHARMA	Assistant Engineer	
	DVC	34.	U.KUMAR	Secretary
		35.	A. NAYAK	Chief Engineer (CLD)
		36.	A.K. JAIN	Chief Engineer (PSR)
		37.	M.M. KUMAR	Chief Engineer (Comml)
	CEA	38.	Dr. J.P. SINGH	Member (E&C) & Addl. Secretary to GoI
	39.	M.K. MEHENDIRATTA	D'man , Office of Member (GO &D)	
NHPC	40.	D. PARIJA	Executive Director	
	41.	N.S. PARMESHWARAN	Chief Engineer (O & M)	
	42.	A. KUMAR	Chief Engineer	
	43.	R. RAINA	Chief Engineer (Comml.)	
POWERGRID	44.	R.N. NAYAK	Director (Operations)	
	45.	A.KUMAR	Executive Director (Comml)	
	46.	K.K. AGARWAL	Executive Director (ER-I)	
	47.	S. SEN	General Manager, ER-II	

Name of the Constituent / Organisation	Sl. No.	Name S/Shri	Designation
POWERGRID	48.	K. SARKAR	Addl. General Manager (OS)
	49.	P. SHARMA	Addl. General Manager (Comml.)
	50.	R.V.S KUSHWAHA	Addl. General Manager (O &M)
	51.	A.K.VERMA	Dy. General Manager (Comml.)
	52.	A.K. MANT	Dy. General Manager
NTPC	53.	U. P. PANI	Regional Executive Director (ER-I)
	54.	V.K. PADHA	General Manager (Comml.), CC
	55.	R.K.PAL	General Manager (OS), ER-II
	56.	H. PANDA	Asst. General Manager (OS)
	57.	K.K. SINHA	Dy.General Manager (Comml.), ER-I
ERLDC	58.	P. PENTAYYA	General Manager
	59.	P. MUKHOPADHYAY	Dy. General Manager
	60.	G. MITRA	Dy. General Manager
	61.	S. KONAR	Manager
PTC	62.	S. MEHRA	Executive Vice President
NERPC	63.	B.K. JAIN	Member Secretary
CIL	64.	H.K. VAIDYA	Chief General Manager (S &M)
MPL	65.	P. CHORGHADE	Chief Executive Officer
APNRL	66.	M.K.RAY	Advisor
	67.	V.K. SARAWAGI	Executive
NABINAGAR PGCL	68.	TUFANI RAM	Chief Executive Officer
DGPCL, BHUTAN	69.	T. DORJI	Executive Director
BPCL, BHUTAN	70.	C. TSHERING	General Manager
ERPC	71.	A.K. RAMPAL	Member Secretary
	72.	A.K. BANDYOPADHYAY	Superintending Engineer (Operation.)
	73.	J. BANDYOPADHYAY	Superintending Engineer (Commercial)
	74.	B. SARKHEL	Superintending Engineer (Power System)
	75.	S.P. DATTA	Dy. General Manager (NTPC)
	76.	S.M. JHA	Executive Engineer
	77.	G. GHOSH	Executive Engineer
	78.	S. KEJRIWAL	Assistant Director-I

ANNEXURE – B

LIST OF PARTICIPANTS IN THE 15TH TCC MEETING

Date: 27.09.2010

Venue: Norbu Gang Resort, Pelling

Name of the Constituent / Organisation	Sl. No.	Name S/Shri	Designation	
WEST BENGAL A) WBSEDCL	1.	ANIRBAN GUHA	Chairperson, TCC & Director (R & T), WBSEDCL	
	2.	M.S. PAL	Chief Engineer (PTR)	
	3.	P.BANERJEE	Divisional Engineer (ALDC)	
B) WBSETCL	4.	A.C. SARKAR	Director (Transmission)	
	5.	D. CHAKRABORTY	Chief Engineer, CPD	
	6.	A. KARMAKAR	Supdt. Engineer (E)	
C) WBPDCCL	7.	R. BOSE	Director (O & M)	
	8.	A.K. GHOSHAL	Director (Projects)	
D) CESC	9.	B.B. CHAKRABARTI	Vice President (SO)	
	10.	R. CHAKRAVARTY	Sr. Manager	
BIHAR BSEB	11.	T.T. JHA	Member (Transmission)	
	12.	RAKESH	EEE /Interstate	
JHARKHAND A) JSEB	13.	C.S. GUPTA	Member (Technical)	
	14.	N.K. OJHA	EEE	
TVNL	15.	S. PANDEY	TS to General Manager	
OPTCL	16.	K.K. NATH	Director (Engineering)	
GRIDCO	17.	A.C. MALLICK	Director (Commercial)	
	18.	R.K. PRADHAN	T.A to Sr. General Manager (PP)	
	19.	S. PATAJOSHI	EA to Director (Comml)	
OHPC	20.	D.K.SAHOO	Sr. General Manager	
GOVT. OF SIKKIM	21.	P.B. SUBBA	Chief Engineer	
	22.	S.P. KAZI	Addl. Chief Engineer	
	23.	H.B. PRADHAN	Executive Engineer	
	24.	P. LEPCHA	Assistant Engineer	
	25.	M.K.BANDYOPADHYAY	Director (Commercial)	
DVC	26.	A. NAYAK	Chief Engineer (CLD)	
	27.	M.M. KUMAR	Chief Engineer (Comml)	
	28.	A.K. JAIN	Chief Engineer (PSR)	
	29.	M.K. MEHENDIRATTA	D'man, Office of Member (G O &D)	
	30.	N.S.PARMESHWARAN	Chief Engineer (O & M)	
NHPC	31.	A. KUMAR	Chief Engineer	
	32.	R. RAINA	Chief Engineer (Comml.)	
	33.	K.K. AGARWAL	Executive Director (ER-I)	
POWERGRID	34.	A. KUMAR	Executive Director (Comml)	
	35.	S.SEN	General Manager, ER-II	
	36.	A.M. PAVGI	Addl. General Manager (Engg.-SEF)	
	37.	P. SHARMA	Addl. General Manager (Comml.)	
	38.	R.V.S. KUSHWAHA	Addl. General Manager (O &M)	
	39.	A.K. VERMA	Dy. General Manager (Comml.)	
	40.	R.K.CHAUBEY	Dy. Manager	
	41.	S.K. SINGH	Ch. Manager (OS), ER-II	
	NTPC	42.	U. P. PANI	Regional Executive Director (ER-I)
		43.	V.K. PADHA	General Manager (Comml.), CC
		44.	R.K.PAL	General Manager(OS), ER-II
45.		H. PANDA	Asst. General Manager (OS)	
46.		K.K. SINHA	Dy. General Manager (Comml.), ER-I	

Name of the Constituent / Organisation	Sl. No.	Name S/Shri	Designation
ERLDC	47.	P. PENTAYYA	General Manager
	48.	P. MUKHOPADHYAY	Dy. General Manager
	49.	G. MITRA	Dy. General Manager
	50.	S. KONAR	Manager
APNRL	51.	M.K. RAY	Advisor
	52.	V.K. SARAWAGI	Executive
CIL	53.	H.K.BAIDYA	Chief General Manager (S &M)
DGPCL, BHUTAN	54.	T. DORJI	Executive Director
BPCL, BHUTAN	55.	C. TSHERING	General Manager
ERPC	56.	A.K. RAMPAL	Member Secretary
	57.	A.K. BANDYOPADHYAY	Superintending Engineer (Operation)
	58.	J. BANDYOPADHYAY	Superintending Engineer (Commercial)
	59.	B. SARKHEL	Superintending Engineer (Power System)
	60.	S.P. DATTA	Dy. General Manager (NTPC)
	61.	S.M. JHA	Executive Engineer
	62.	G. GHOSH	Executive Engineer
	63.	S. KEJRIWAL	Assistant Director-I

STATUS OF PROJECT UNDER IMPLEMENTATION BY POWERGRID

Sl. No.	Name of the Trans line	Investment Approval	Cost (Appd.) /Ant.	Commissioning Schedule	Remarks / Constraints & assistance required.
1	Common Scheme for 765KV Pooling Station and Network Associated with DVC & Maithon RB Project etc and Inport by NR & WR via ER	Aug'08	7075.33	Aug'12	
	400KV D/C Maithon-Gaya line (Q)			Dec'11*	* Completion likely to be delayed due to involvement of Multi-ckt (being awarded seperately). Contingency arrangement being made to connect Maithon -Gaya with Koderma-Gaya, by-passing multi-ckt portion, to from Maithon-Koderma line
	765KV S/C Gaya - Sasaram line			Aug'12	
	765KV S/C Gaya - Balia line			Dec'11	
	765KV S/C Ranchi - WR Pooling Station			Mar'12	
	765KV S/C Balia - Lucknow line			Dec'11	
	400KV D/C Ranchi (New) -Ranchi line -I (Quad)			Mar'12	
	400KV D/C Ranchi (New) -Ranchi line - II (Quad)			Mar'12	
	400KV D/C Lucknow (New) - Lucknow line - II (Quad)			Dec'11	
	LILO of 400KV D/C Barh - Balia at Patna			Mar'12	
	LILO of both Ckt of Allahabad - Mainpuri at Fatehpur			Dec'11	

Sl. No.	Name of the Trans line	Investment Approval	Cost (Appd.) /Ant.	Commissioning Schedule	Remarks / Constraints & assistance required.
2	Supplementary Transmission System Associated with DVC & Maithon Right Bank Proejct	Aug'08	2360.95	Aug'12	
	400KV D/C Maithon RB - Ranchi (PG) line			Aprl'11	Completion matching with 2nd unit of Maithon RB Gen. Project
	400KV D/C Bokara TPS Extn.- Koderma TPS line			Aug'12	Gen. project (Bokaro STPP) delayed beyond Mar'12.
	400KV D/C Koderma - Gaya line (Quad)			Dec'11*	* Completion likely to be delayed due to involvement of Multi-ckt (being awarded seperately). Contingency arrangement being made to connect Maithon -Gaya with Koderma-Gaya, by-passing multi-ckt portion, to from Maithon-Koderma line
	400KV D/C Mejia - Maithon line			Dec'10	Completion matching with 2nd unit of Mejia. Efforts being made to complete the line earlier.
	765KV S/C Sasaram - Fatehapur line-I			Aug'12	
	765KV S/C Fatehpur - Agra line			Aug'12	
	400KV D/C Biharshariff - Sasaram line (Quad)			Dec'11	
	LILO of 400KV S/C Singrauli - Kanpur line at Fatehpur			Aug'12	
	LILO of 400KV S/C Allahabad - Kanpur line at Fatehpur			Aug'12	
	LILO of 220KV D/C Fatehpur (UPPCL) - Kanpur (UPPCL) line at Fatehpur			Aug'12	
	LILO of 220KV D/C Dehri - Bodhgaya line at Gaya			Dec'11	

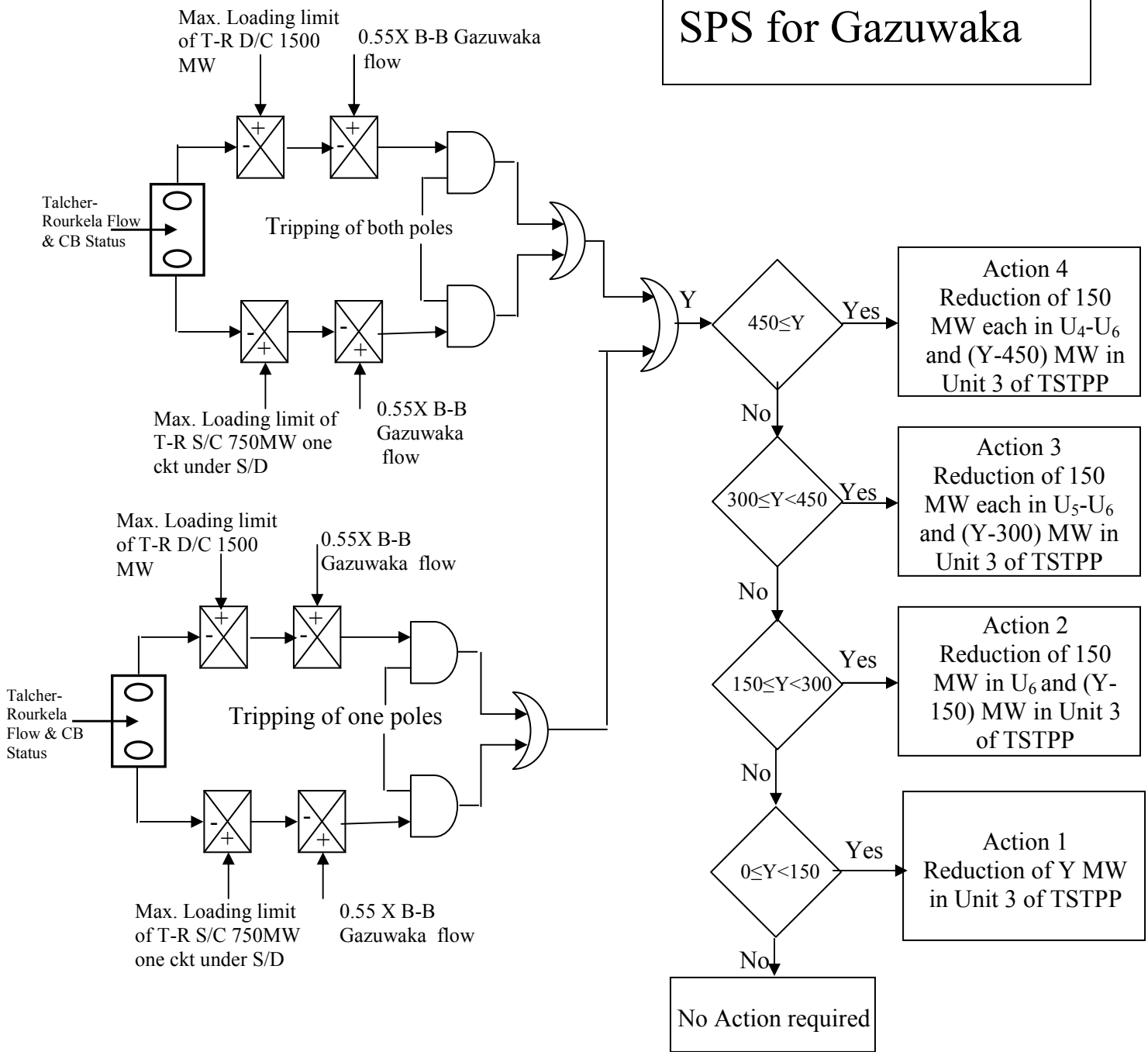
Sl. No.	Name of the Trans line	Investment Approval	Cost (Appd.) /Ant.	Commissioning Schedule	Remarks / Constraints & assistance required.
3	Eastern Region Strengthening Scheme - I	Oct'06	975.96	Dec'10	
	400KV D/C Durgapur - Jamshedpur			*	* Completion uncertain Critical ECL is not allowing construction on the diverted route diverted to allow setting up of Andal Airport. Powergrid is making ready a portion (19.5 Km) to provide connecting for LILO at Durgapur Steel TPS (being connected by DVC) for start up power.
	400KV D/C Jamshedpur - Baripada			Dec'10	Severe ROW problem being faced in Jharkhand. Matter taken up with chief Sec. & distt administration. Critical.
	400KV D/C Jamshedpur - Baripada			Dec'10	Severe ROW problem being faced in Jharkhand. Matter taken up with chief Sec. & distt administration. Critical.
	Re-conductoring of Siliguri - Purnea 400kV D/c line with high capacity conductor			Mar-12	
4	Eastern Region Strengthening Scheme - II	Dec'07	227.52	Oct'10	
	400KV D/C Durgapur - Maithon line			Oct'10	Severe ROW problem being faced. Matter taken-up with Distt. Admn.
5	Transmission System for Start - up Power to DVC and Maithon Right Bank Gen. Project.	April'08	290.49	Dec'10	
	400KV D/C Koderma -Biharshariff (Quad)			Dec'10	Forest clearance critical. About 40 Kms stretch affected. Ist stage clearance accorded in July'10. Final Clearance awaited.

Sl. No.	Name of the Trans line	Investment Approval	Cost (Appd.) /Ant.	Commissioning Schedule	Remarks / Constraints & assistance required.
	400KV D/C Maithon RB - Maithon line			Sep'10	
	LILO of one ckt of 400KV D/C Maithon - Jamshedpur line at Mejia			Jan'10	Line commissioned on 29.01.10.
6	Transmission System Associated with FARAKKA - III	Dec'08	204.07	Jun'11	
	400KV D/C Farakka - Kahalgaon line (2nd line)			Jun'11	Efforts shall be made to match with Gen. Proj. now expected in Feb'11.
7	Immediate evacuation system for NABINAGAR TPS	Feb'10	215.86	Jun'12	
	400KV D/C Nabinagar - Sasaram line (Twin lapwing))			Jun'12	Efforts being made to complete the line earlier to provide start-up power to Gen. Project.
8	Transmission System for Development of Pooling Station in Northern region Part of West Bengal and Transfer of Power from BHUTAN to NR/WR.	Apr'10	4404.57	Jan'15	
	LILO of Bishwanath Chariali - Agra HVDC line at New Pooling Station in Alipurduar for parallel operation of the HVDC stn.			Jan'15	NIT planned in 2011-12.
	LILO fo 400KV D/C Bongaigaon - Siliguri line at New Pooling Station in Alipurduar (Pvt. Sector)			Jan'15	NIT planned in 2011-12.
	LILO of 400KV D/C Tala - Siliguri line at New Pooling Station in Alipurduar			Jan'15	NIT planned in 2011-12.

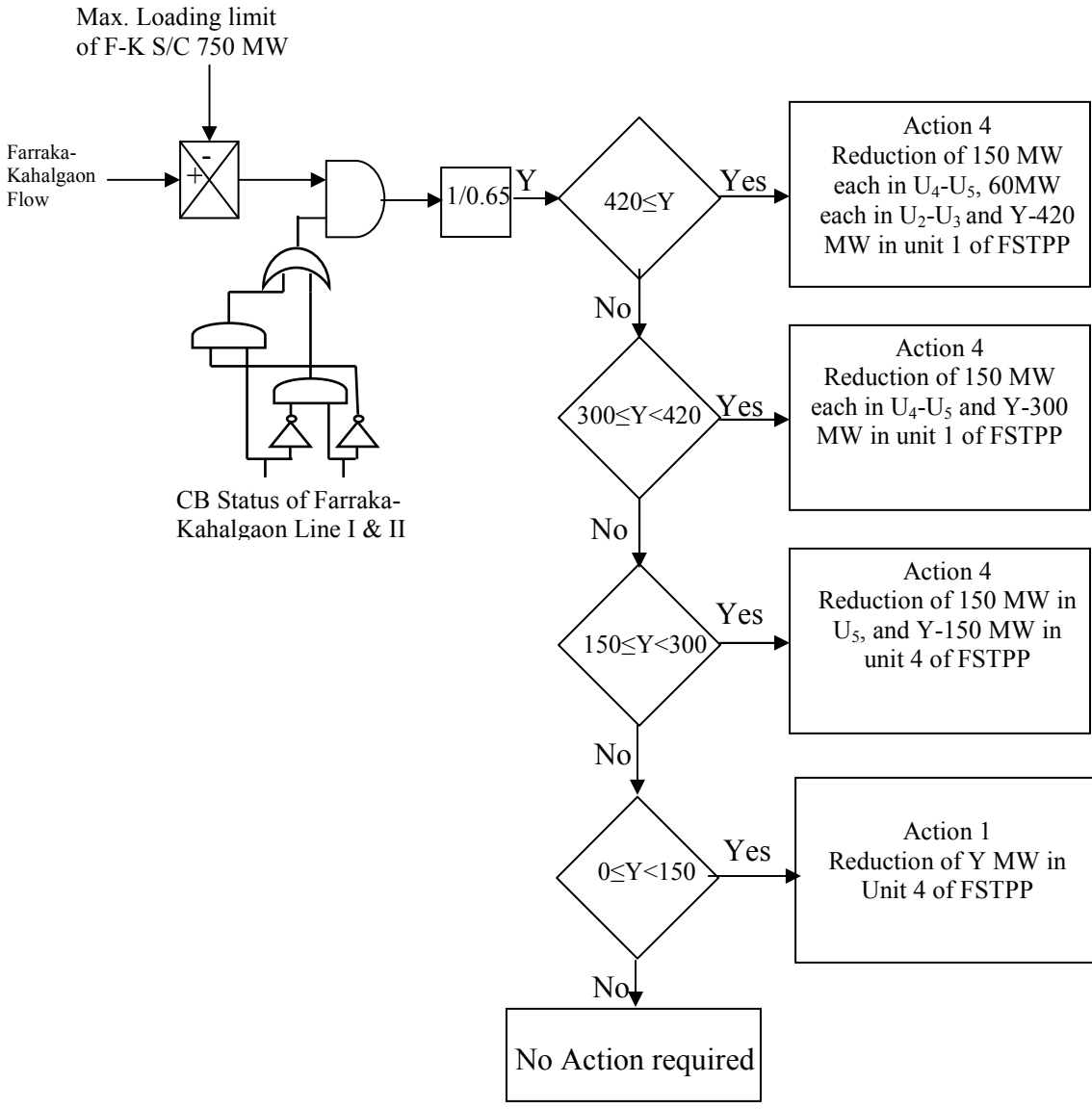
Sl. No.	Name of the Trans line	Investment Approval	Cost (Appd.) /Ant.	Commissioning Schedule	Remarks / Constraints & assistance required.
	400KV D/C Punatsangchu-1 (Gen. Proj. in Bhutan) - Alipurduar line (Indian Portion)			Jan'15	NIT planned in 2011-12.
	LILO of 220KV D/C Birpara - Salakati line at New Pooling Station in Alipurduar			Jan'15	NIT planned in 2011-12.
	Earth Electrode line at New Pooling Station in Alipurduar & Agra end.			Jan'15	NIT planned in 2011-12.
9	Eastern Region Strengthening Scheme - III	July'10	1272.80	Nov'12	
	400KV D/C Sasaram - Deltonganj line			Nov'12	Tendering under progress.
	400KV D/C Mendhasal - Ultra line			Nov'12	Tendering under progress.
	LILO of 400KV D/C Kahalgaon - Biharshariff line (1st line) at Lakhisarai			Nov'12	Tendering under progress.
	LILO of 400KV D/C Kahalgaon - Biharshariff line (2nd line) at Banka			Nov'12	Tendering under progress.
	LILO of 400KV S/C Meramundali - Jeypore line at Bolangir			Nov'12	Tendering under progress.
	LILO of 400KV S/C Rengali - Baripada line at Keonjhar			Nov'12	Tendering under progress.
	LILO of 400KV D/C (one ckt) Rengali - Baripada line at Dubri (OPTCL)			Nov'12	Tendering under progress.
	LILO of 400KV D/C (both ckt) Jamshedpur - Rourkela line at Chaibasa			Nov'12	Tendering under progress.
10	Eastern Region Strengthening Scheme - IV				DPR under preparation

Sl. No.	Name of the Trans line	Investment Approval	Cost (Appd.) /Ant.	Commissioning Schedule	Remarks / Constraints & assistance required.
	Additional 1X160 MVA, 220/132 kV Transformer with associated bays at 220/132kV Siliguri Substation				
	Replacement of 1X50MVA, 220/132 kV Transformer by 1X160MVA, 220/132kV Transformer and associated bays at 220/132kV Birpara Substation				
	Replacement of 2X50MVA, 220/132 kV Transformer by 2X160MVA, 220/132kV Transformer and associated bays at 400/220/132kV Malda Substation				
	Installation of additional Bay/Breaker against 400kV Malda-Farakka-I feeder at Malda Substation				
	125 MVAR Bus Reactor alongwith associated bays at Ranchi 400/220kV S/s				
	125 MVAR Bus Reactor alongwith associated bays at Patna 400/220kV S/s				
11	Interconnecting lines from North Karanpura STPP to the pooling stations at Ranchi and Gaya			Jan '13	DPR ready, NTPC has requested to keep it on hold
12	Immediate evacuation system for Tilaiyya UMPP			May '15	DPR under preparation

SPS for Gazuwaka

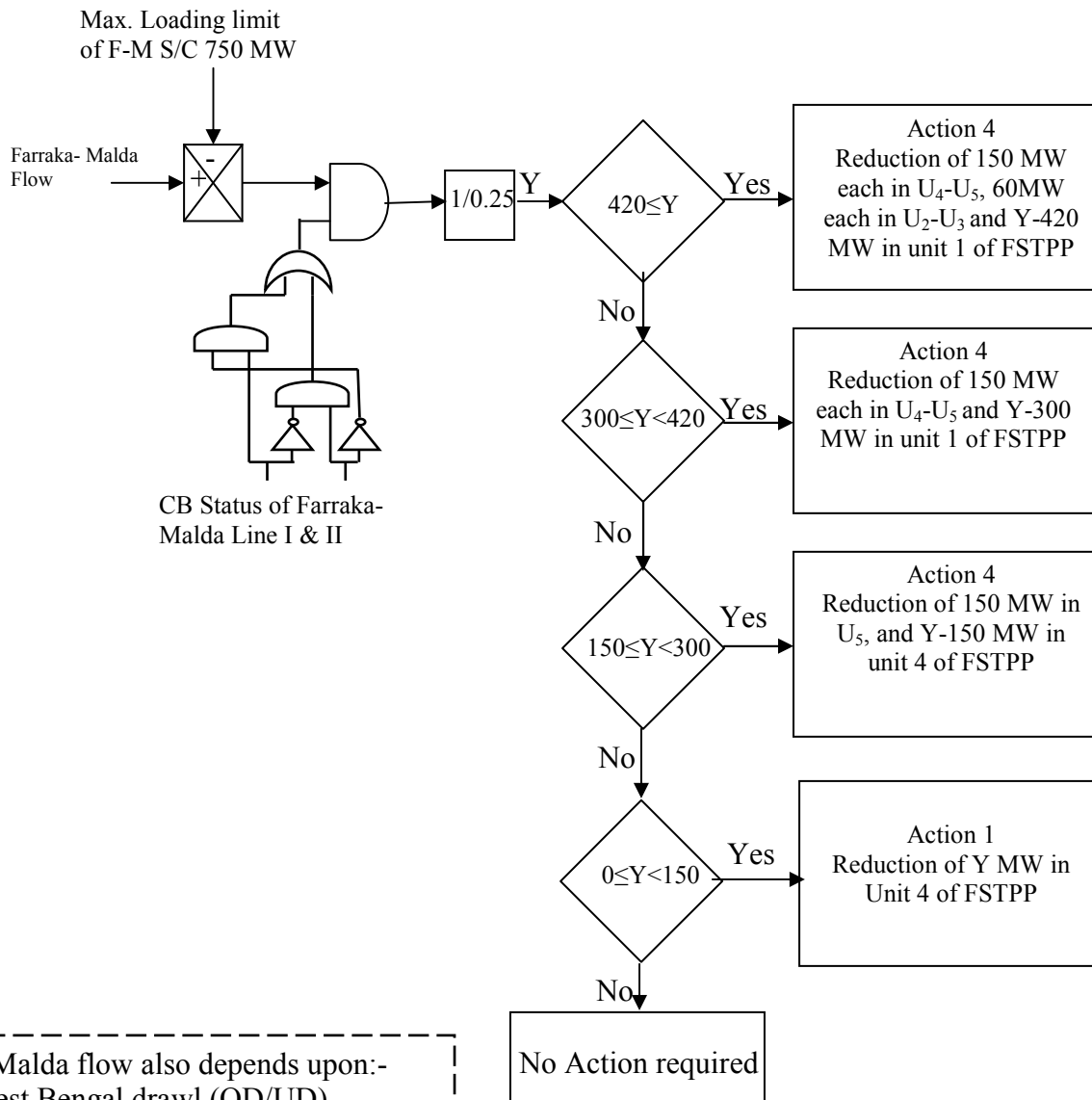


SPS for 400KV Farakka -Kahalgaon



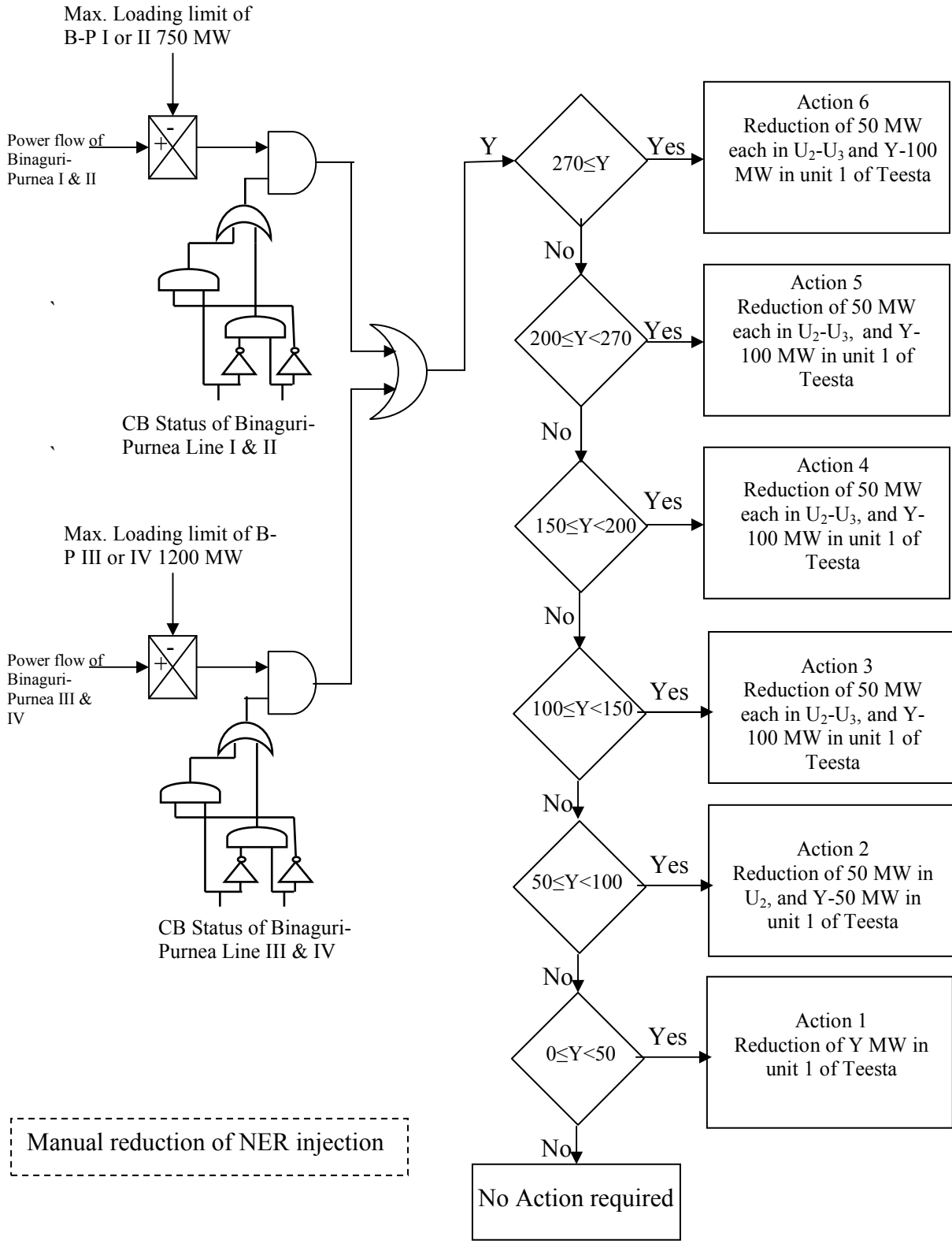
Farakka- Kahalgaon flow also depends upon:-
 - West Bengal drawl (OD/UD)
 - PPSP Mode (Generator/Pump)
 Control to these can be made manual
 This is valid for high hydro condition

SPS for 400KV Farakka -Malda

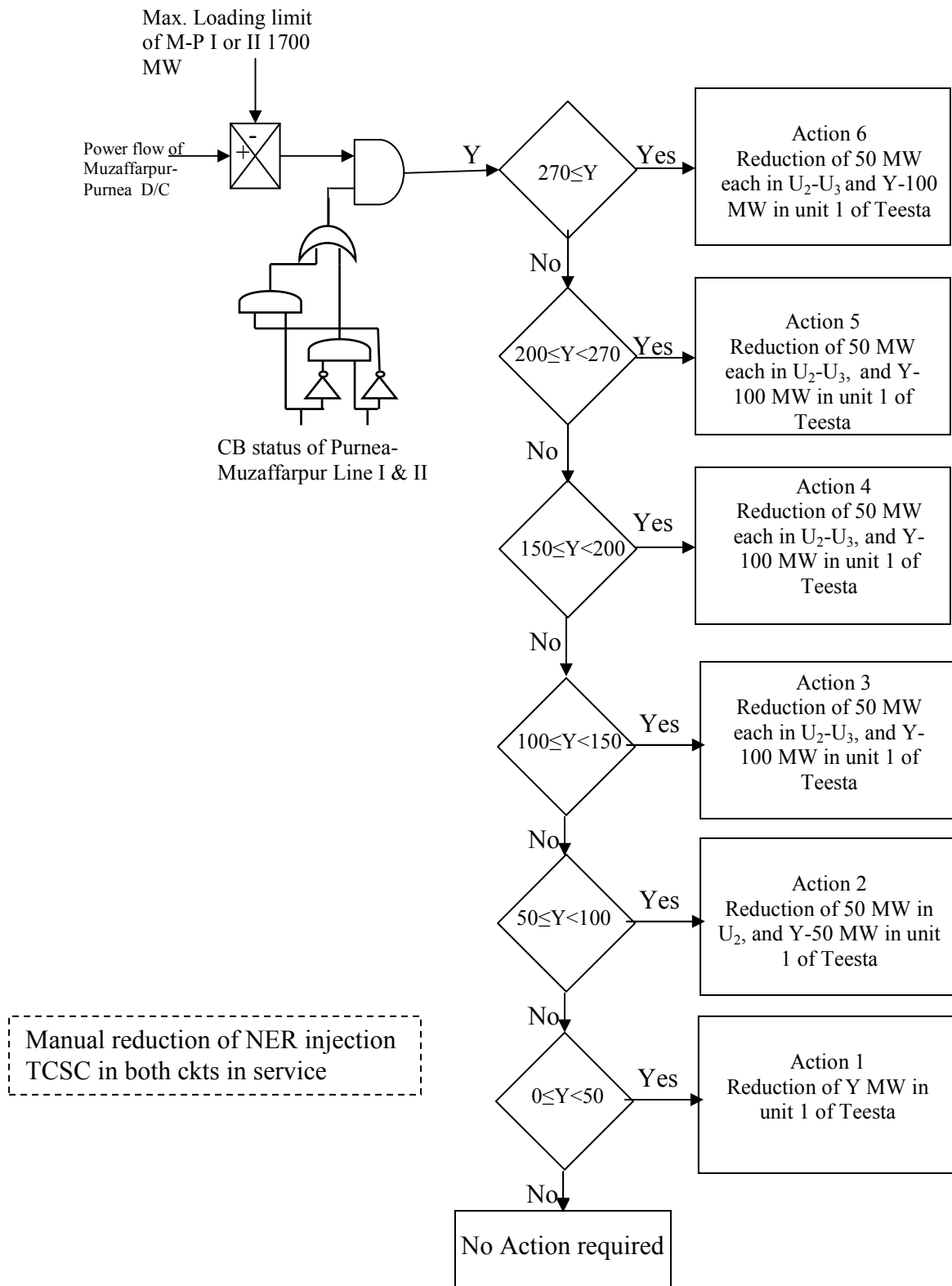


Farakka- Malda flow also depends upon:-
 - West Bengal drawl (OD/UD)
 - PPSP Mode (Generator/Pump)
 Control to these can be made manual.
 Multiplying factor may vary from S/D of one ckt. Malda-Purnea.
 This is valid for Low hydro condition.

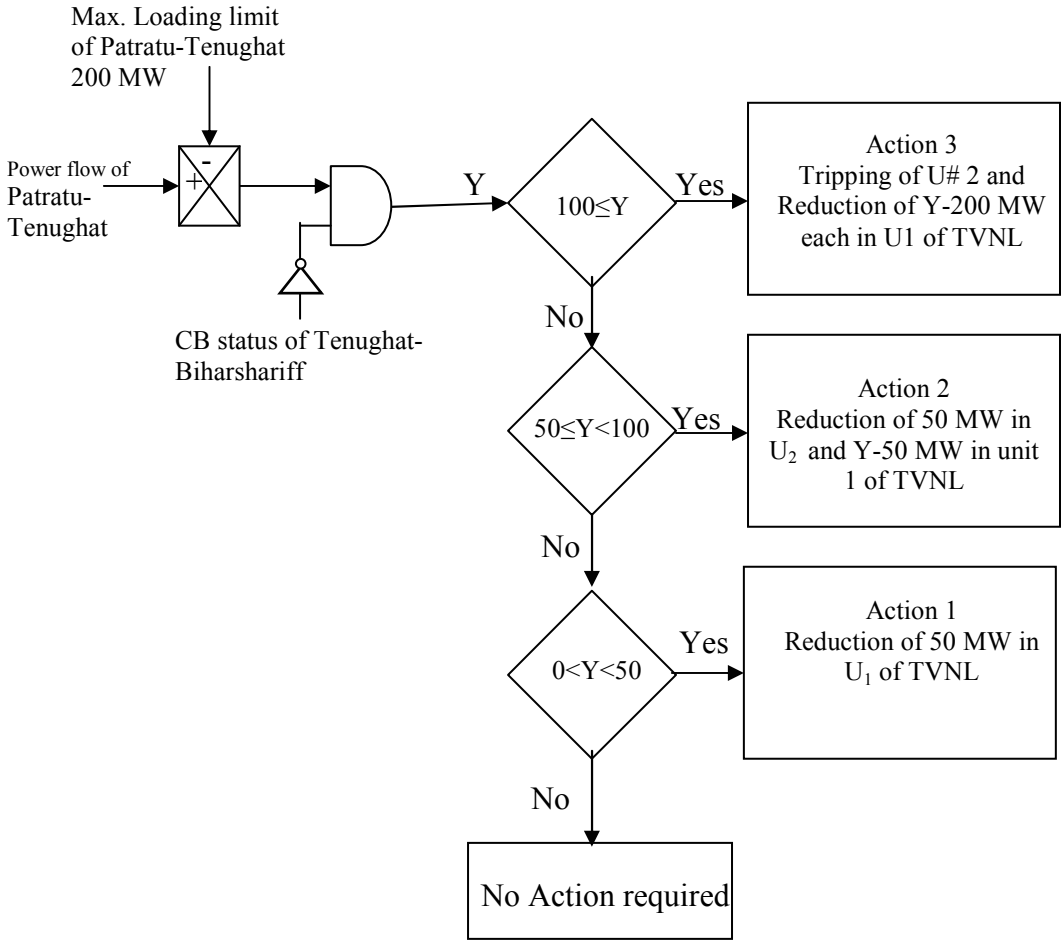
SPS for 400KV Binaguri -Purnea



SPS for 400KV Purnea -Muzaffarpur



SPS for 220KV Tenughat -Biharshariff



Annexure - II

SUMMARY OF UI RECEIPT AND PAYMENT STATUS

BILL UPTO 15.08.2010 (Week - 20 of 2010 - 11)

Last Payment Disbursement Date - 27.08.10

Figures in Rs. Lakhs

CONSTITUENTS	Receivable	Received	Payable	Paid	Outstanding
WR	2427.61745	2427.83708	28052.38712	25726.90528	-2325.70147
SR	4652.72103	3427.65047	3898.92941	3195.93853	522.07968
NER	310.14216	289.86858	9800.03600	8962.68918	-1228.77056
NR	72750.13626	65782.84547	364.92234	365.59849	4715.97532
BSEB	5367.78112	0.00000	6565.82317	0.00000	-1198.04205
JSEB	1314.61105	1314.61105	13916.09048	11339.78815	-2576.30233
DVC	16470.15057	15551.97714	482.11664	482.11664	918.17343
GRIDCO	1206.55953	1020.41698	23703.11757	24315.39020	798.41518
WBSETCL	962.56387	962.56387	9993.96957	9770.09752	-223.87205
SIKKIM	143.69991	143.69991	1151.74749	1043.77449	-107.97300
NTPC	0.00000	0.00000	2478.06285	2265.05814	-213.00471
NHPC	0.00000	0.00000	1080.33811	1029.29461	-51.04350
Pool Balance	0.00000	0.00000	937.80731	875.93041	-61.87690
Additional UI charge	1708.89485	992.86537	432.30154	0.00000	716.02948
Transfer to IRE	0.00000	0.00000	391.58382	581.52578	189.94196
TOTAL	105605.98295	90921.47055	103249.23342	89954.10742	

% Realization	86.09	As on 27.08.10
Receivable:	Receivable by ER POOL	Payable by ER POOL
Received	Received by ER POOL	Paid by ER POOL
"- ve" Payable by ER pool	"+" ve" Receivable by ER pool	

Annexure - III

SUMMARY OF UI RECEIPT AND PAYMENT STATUS

**BILL UPTO 28.03.2010 (Week - 52 of 2009 - 10)
Last Payment Disbursement Date - 13.07.2010**

Figures in Rs. Lakhs

CONSTITUENTS	Receivable	Received	Payable	Paid	Outstanding
WR	0.00000	0.00000	175115.05137	175115.05137	0.00000
SR	15993.12351	15993.12351	6742.09562	6742.09562	0.00000
NER	3609.58465	3609.58468	13896.30663	13896.30666	0.00000
NR	144180.27079	144526.69398	169.41504	35.62383	-480.21440
BSEB	17103.24995	10331.47603	3420.60075	2806.47056	6157.64373
JSEB	6747.57846	6747.57846	10946.91987	10946.91987	0.00000
DVC	61527.97256	61527.94448	2002.01781	2002.01781	0.02808
GRIDCO	32935.49583	32311.91445	8244.17814	7620.59676	0.00000
WBSETCL	2334.25626	2334.14862	30160.16196	30160.05432	0.00000
SIKKIM	684.22654	684.19278	4629.35366	4629.31990	0.00000
NTPC	0.00000	0.00000	15794.80451	15794.80451	0.00000
NHPC	0.00000	0.00000	2221.93972	2221.93972	0.00000
Pool Balance	0.00000	0.00000	3430.79751	3430.79751	0.00000
Additional UI charge	4650.05897	3836.50702	784.17447	0.00000	813.55195
Transfer to IRE	0.00000	0.00000	2935.16223	3737.69661	802.53438
TOTAL	285115.75855	278066.65699	280492.97929	279139.69505	

% Realization	97.53	As on 13.07.10
Receivable:	Receivable by ER POOL	Payable by ER POOL
Received	Received by ER POOL	Paid by ER POOL
"- ve" Payable by ER pool	"+" ve" Receivable by ER pool	

ANNEXURE-IV

**STATUS OF REACTIVE CHARGES IN ER REACTIVE POOL AS PER PUBLISHED A/C UPTO 15.08.10
AS ON 31.08.10**

Figures in Rs

CONSTITUENTS	2003-04		2004-05		2005-06		2006-07		2007-08		2008-09		2009-10		2010-11		TOTAL		
	RECEIVABLE	RECEIVED	RECEIVABLE	RECEIVED	RECEIVABLE	RECEIVED	RECEIVABLE	RECEIVED	RECEIVABLE	RECEIVED	RECEIVABLE	RECEIVED	RECEIVABLE	RECEIVED	RECEIVABLE	RECEIVED	RECEIVABLE	RECEIVED	
BSEB	0	0	0	0	0	0	284950	0	0	0	0	0	0	0	0	0	284950	0	
DVC	6593	6593	86391	86391	264138	264138	0	0	0	0	223311	223311	0	0	0	357122	357122	0	
GRIDCO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	223311	223311	0
WBSEB	1778848	1778848	451090	451090	350045	350045	3519490	3519490	881058	881058	3716019	3716019	3431470	3431470	1273089	1273089	15401109	14128020	0
UPPCL	0	0	0	0	0	0	28575	8465	0	0	0	0	0	0	0	0	28575	8465	0
TOTAL	1785441	1785441	537481	537481	614183	614183	3833015	3527955	881058	881058	3939330	3939330	3431470	3431470	1273089	1273089	16295067	14716918	0

Total Received 14716918

Expenditure incurred for organising workshop on Black Start Procedure (4 SLDCs) 160000

Expenditure incurred for organising a seminar on Power Exchange 290000

Expenditure incurred for organising seminar on "Reduction of Agreed technical & commercial Loss-Issues and Challenges " at Bhubaneswar 184991

Expenditure incurred for organising workshop on Black Start Procedure at ERPC on 19.11.09 123028

Expenditure incurred for organising a seminar on Black Start on 18.04.09 at Hotel Big Boss 49050

Amount Retained in Reactive A/C 13909849

Annexure - V

Distribution of IRE amount among ER constituents as Transmission Credit

BENEFICIARIES	APPORTIONED AMOUNT (RS IN LACS)
BSEB	3201.02163
JSEB	888.62610
DVC	339.00387
GRIDCO	1739.14577
SIKKIM	298.54686
WBSETCL	2420.96490
TOTAL	8887.30913

Annexure - VI

All fig in Rs Lakhs
Total amount available as per accounts (Considering bill upto 15.08.10)
As on 31.08.2010

Year	Amount in pool due to Capping of NTPC Str.s As per actual	Additional UI Charge As per actual
2007 - 08	5005.87950	0.00000
2008 - 09	12153.10284	0.00000
2009 - 10	3430.79751	3836.50702
2010 - 11	875.93041	992.86537
Sub-Total	21465.71026	4829.37239
a) Payment made to WRLDC	-29.80931	
b) Payment made to ER constituents outstanding amount	-4956.41408	
Grand Total	16479.48687	

Note:- a) Out of Capping amount Rs.29.80931 Lac has been disbursed to WRLDC as consultancy charges of ERLDC portion for Power Tracing

b) The outstanding amount of Rs 4956.41408 Lac of ER constituents for 2009 - 10 has been paid from the available pool Balance

Annexure - VII

REPORT OF OPENING OF LC IN EASTERN REGION (AS ON 31.08.10)

SI. No	Name of ER Pool members	Letter issued by ERLDC to Open LC	LC Amount (Lakhs of Rupees)	Status	Response from Pool Members	Remarks
1	BSEB	Yes	361.54	LC not opened	Nil	No intimation is received
2	JSEB	Yes	142.74	LC not opened	Nil	No intimation is received
3	DVC	Yes	0.00	LC not required		
4	GRIDCO	Yes	696.71	LC opened	LC Opened	
5	WBSETCL	Yes	49.38	LC not opened	Nil	No intimation is received
6	SIKKIM	Yes	14.47	LC not opened	LC opening is in process	
7	NTPC	Yes	0.00	LC not required		
8	NHPC	Yes	0.00	LC not required		

