

Government of India  
Central Electricity Authority, SP&PA Division  
Sewa Bhawan, R.K. Puram  
New Delhi-110066

No.66/5/99-SP&PA/

Dated : 14-8-2006

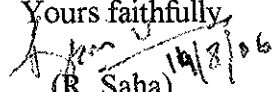
1. Member (Transmission),  
Bihar State Electricity Board  
Vidyut Bhavan, Baily Road,  
Patna-800021.
2. Director (System),  
Damodar Valley Corporation  
DVC Towers, VIP Road,  
Kolkata-700054.
3. Member Secretary  
Eastern Regional Power Committee  
14, Golf Club Road, Tollygange,  
Kolkata-700033.
4. Director (Transmission)  
Grid Corporation of Orissa Ltd,  
Jan path, Bhubaneshwar-751022.
5. Member (Transmission),  
West Bengal State Electricity Board,  
Vidyut Bhavan, Block-DJ, Sector-II  
Salt Lake, Kolkata-700091.
6. Principal Chief Engineer cum Secretary  
Power Department  
Government of Sikkim  
Sikkim.
7. Director (Projects)  
Power Grid Corporation of India  
"Saudamini" Plot No. 2, Sector-29  
Gurgaon-122001
8. Director (Projects)  
NTPC Limited,  
Engineering Office Complex,  
A-8, Sector 24, Noida.
9. Member (Transmission),  
Jharkhand State Electricity Board,  
In front of Main Secretariat,  
Doranda, Ranchi-834002.
10. Director (Projects)  
NHPC, NHPC Office complex,  
Sector 33, Faridabad-121003.
11. Director (Operation)  
Power Trading Corporation  
NBCC Towers, 2<sup>nd</sup> floor,  
13, Bhikaji Cama Place, New Delhi.

Sub: Minutes of the Standing Committee Meeting on Power System Planning in  
Eastern Region held at Mirik, Darjeeling on 22.06.06 - regarding.

Sir,

Minutes of the meeting held at Mirik, Darjeeling on 22.06.06 on the above subject  
is enclosed.

Encl: as above

Yours faithfully,  
  
(R. Saha) 14/8/06  
Director (SP&PA)

Copy to:

1. Shri R. S. Sharma, ED(OS-R&M),  
Eastern Region Head Quarters(NTPC),  
Loknayak Jaiprakash Bhawan, 2<sup>nd</sup> Floor,  
Dak Banglow Chowk, Patna 800 001.
2. Managing Director,  
Tenughal Vidyut Nigam Ltd. (TVNL), Hinoo,  
Doranda, Ranchi 834 002.
3. Executive Director (Operation)  
West Bengal Power Dev. corporation,  
6<sup>th</sup> floor, B-Block,  
New Secretariat Building  
I, K.S. Road, Kolkata-700 001

## **Minutes of the Standing Committee Meeting on Power System Planning in Eastern Region held at Mirik, Darjeeling on 22.06.06**

List of the participants is at Annex.

GM (Proj), PGCIL, ER-II welcomed the participants to the meeting.

Member (PS), CEA welcomed all the participants and thanked POWERGRID for arrangement to host the meeting. In the opening remarks, he stated that because of ample coal reserve in ER, the region would be a major provision of electricity from its generation resources to the deficit regions. A number of generation projects were also to take-off in NER, power from which would mostly go to the power deficit regions like NR and WR. For evacuation and transmission of power from these generation projects, composite evacuation system had been planned addressing the ROW constraints in the chicken-neck-area. In this connection, he referred the meeting with WBSEB officials held on 21-6-07 at Siliguri, in which action plan for acquiring ROW for the transmission corridors in the chicken-neck-area was discussed.

Thereafter he requested CE (SP&PA) to take up the agenda items for discussions.

### **1. Confirmation of the minutes of Standing Committee Meeting held at Puri on 24.12.04.**

CE(SP&PA), CEA stated that minutes of the Standing Committee Meeting held at Puri on 24.12.04 were circulated vide CEA letter no. 66/9/99/SP&PA/ dated 20.1.2005. Follow-up responses were received from the constituents with comments relating to recording of the minutes of the meeting. Accordingly corrigendum with revised minutes of the standing committee meeting held on 24.12.2004 was issued vide letter No. 66/9/99/SP&PA/ dated 20.5.2005.

Member (Trans) WBSEB stated that in their letter dated 28-02-05, they had a number of observation but the corrigendum issued did not reflect all the points. In this context, he stated that there should have corrections in respect of item-2.3.5 and item-7 of the MoM as communicated by WBSEB. CE(SP&PA) stated that a section of item-2.3.5 and item-7 of MoM would require to be corrected as following:

**Section of Para-2.3.5 of MoM held at Puri on 24-12-04, circulated vide Ir dated 20.5.2005 is reproduced below:**

#### **Quote:**

“The proposal for 400 kV Baripara - Bhubaneswar - Behrampur - Gazuwaka D/C line with 40% series compensation on 400 kV Behrampur - Gazuwaka D/C line for providing required strengthening in the ER regional grid, so as to meet the increased regional transmission need on account of increased power coming to Baripada and to maintain power transfer capability of 1000 MW level upto Gazuwaka for which Gazwaka HVDC back to back link had been planned, was agreed. In regard to 400 kV S/S at Bhubaneswar ..... met from the 400 kV Chandaka S/S of GRIDCO.”

## Unquote

**The above section could be corrected as following:**

*"The proposal for 400 kV Baripara - Bhubaneswar - Behrampur - Gazuwaka D/C line with 40% series compensation on 400 kV Behrampur - Gazuwaka D/C line for providing required strengthening in the ER regional grid, so as to meet the increased regional transmission need on account of increased power coming to Baripada and to maintain power transfer capability of 1000 MW level upto Gazuwaka for which Gazwaka HVDC back to back link had been planned, was discussed. WBSEB representative stated that they were not agreeable to construct this line as Regional scheme. However, in regard to 400 kV S/S at Bhubaneswar it was discussed that the requirement of supplying power to Bhubaneswar corresponding to the 11<sup>th</sup> plan time frame would be satisfactorily met from the 400 kV Chandaka S/S of GRIDCO."*

**In respect of section of Para-7 of MoM held at Puri on 24-12-04, circulated vide Ir dated 20.5.2005 is reproduced below:**

## Quote:

*"CE (I/C), CEA intimated that transmission system for evacuation of power from Teesta LD Stage III and Teesta LD stage IV was earlier planned on the basis of the commitment given by WBSEB that entire power would be absorbed by WBSEB. However, in the annual review meeting held in CEA on 13.12.04 in connection with the monitoring of the progress of transmission works of WBSEB, it was informed by WBSEB that they were not intending to avail 100% power from these HEPs. He inquired the same from WBSEB. Representative of WBSEB intimated that transmission works were held up as there was no response from the private Construction Company to take up the works. Chief Engineer (I/C), CEA stated that in case WBSEB was not intending to avail 100% power from these HEPs NHPC would need to identify alternate buyer for purchase of power from these generating stations and evacuation system would also need to be re-firmed up. As NHPC representative was not present in the meeting, it was decided that CEA would take up this matter with NHPC."*

## Unquote

**The above para would be corrected as following:**

*"CE (I/C), CEA intimated that transmission system for evacuation of power from Teesta LD Stage III and Teesta LD stage IV was earlier planned on the basis of the commitment given by WBSEB that entire power would be absorbed by WBSEB. In the annual review meeting held in CEA on 13.12.04 in connection with the monitoring of the progress of transmission works of WBSEB, it was also reiterated by WBSEB that they were not unwilling to avail 100% power from these HEPs. They had also stated that WBSEB was facing some difficulties for construction of evacuation system. However, Chief Engineer (I/C), CEA stated that in case WBSEB was not intending to avail 100% power from these HEPs NHPC would need to identify alternate buyer for purchase of power from these*

*generating stations and evacuation system would also need to be re-firmed up and if so, CEA would take up this matter with NHPC."*

The minutes were taken as confirmed with above corrections..

**2. National Electricity Plan- Transmission.**

Chief Engineer (SP&PA), CEA stated that the draft NEP –transmission was discussed in Aug'05 in Kolkata. Subsequently, it had been revised/updated based on feedback and updated generation program and was under consideration of MoP. The same would be notified after approval of MoP.

**3. 400kV Ranchi-Rourkela-Raipur D/C line (second 400kV D/C line between Rourkela-Raipur) with TCSC on Rourkela-Raipur section.**

Chief Engineer, CEA informed that based on the discussion held at Puri meeting regarding concurrence of WR to bear 100% transmission charges for the line with TCSC on Rourkela-Raipur section, the issue was taken up with WR in its 127<sup>th</sup> meeting held on 20-05-05 and WR constituents agreed for 100% payment.

**4. System strengthening scheme of Eastern Region**

Chief Engineer (SP&PA),CEA stated that WBSEB and DVC had given commitment towards sharing of the transmission charges for the 400kV D/C Parulia-Jamshedpur- Baripada-Mendhashal line based on which Powergrid had taken-up the process of investment approval. However, the issue of covering the transmission charges under the regional pool was yet to be resolved. Member, WBSEB informed that tripartite agreement in this context was reached between WBSEB, DVC and POWERGRID in the 116<sup>th</sup> ERE Board meeting. He stated that the utility of the transmission system should be considered from long- term perspective and would also yield benefit to Bihar for absorption of additional power.

→ It was decided that ERPC would taken-up this issue in the TCC.

**5. Establishment of 400/220kV Sub-station at Bolangir by LILO of Meramundali- Jeypore 400kV S/C line.**

5.1 Chief Engineer, CEA stated that the establishment of 400/220kV Sub-station at Bolangir with LILO of Meramundali- Jeypore 400kV S/C line would be a technical requirement to meet growing load requirement in that area and enhance voltage stability of the grid for which the transmission charges may be shared on regional pool basis.

- 5.2 Member(Comm. & HRD), WBSEB stated that the proposed work would exclusively yield benefit to Orissa and OPTCL should implement it under their own arrangement. He further stated that if this scheme be considered as regional scheme, the establishment of 400kV Guptamani and other sub-stations in WBSEB viz. Midnapur, Howrah, Gokarna etc. should also be considered as regional scheme to meet the growing load demands of West Bengal.
- 5.3 Dy.C E, DVC stated GRIDCO should build their own transmission requirement to meet their need.
- 5.4 Sr.GM(PP), GRIDCO stated that Orissa had earlier supported many transmission work as regional scheme for interest of other States in the region.
- 5.5 CE (SP&PA) stated that creation of Bolangir 400kV S/s and its cost sharing on regional pool basis should not be dealt in isolation as an exclusive requirement of Orissa, rather it would be seen as a common perspective meeting requirements of all the States in the region. Transmission strengthening for availing increased inter-state power by the states was basically a regional grid strengthening and such schemes were being covered according in the other regions as well.
- 5.6 M(PS) stated that for the 400kV substations proposed by WBSEB, they could come-up with specific proposals of their new sub-stations with justification. These would be examined in CEA in consideration with the overall capacity of ICTs that were provided at regional grid sub-stations of individual State in the region pari passu with allocation of respective Central sector share of the respective State. In this context, the list of regional schemes along with state-wise regional grid sub-station capacity would be prepared and discussed in the next SCM to determine the requirement of new-substations.
- 5.7 CE (SP&PA), CEA further stated that proposal of GRIDCO for Bolangir 400kV/220kV Sub-station by LILoing of Meramundali- Jeypore 400kV S/C line was not associated with any generation project and could therefore be considered as regional scheme. Member, WBSEB referred that establishment of 132/33 kV Sub-station by LILoing of one ckt. of 132 kV Rangit HEP-Siliguri D/C existing line at Kuersong was not considered as regional scheme. As such WBSEB was not agreeable to the proposal of GRIDCO. Keeping in view the requirement of OPTCL, ED, POWERGRID suggested that Powergrid could construct the Bolangir sub-station for which 100% transmission charges would be borne by GRIDCO.
- 5.8 It was decided that issue would be further discussed in the next meeting based on feed back from the utilities and exercise with input to state wise regional transformers capacity vis-à-vis inter-state allocations.
- 6. Additional 160MVA 220/132kV ICT at Baripada(Powergrid).**
- 6.1 CE (SP&PA) stated that only one transformer of 160MVA 220/132kV was provided at Baripada substation of PGCIL and second transformer of same capacity was a technical requirement for reliable supply of power to Baripada,

Palasponga, Rairangpur and Balasore areas. Member, WBSEB stated that an additional 160MVA 220/132kV transformer at Siliguri substation of PGCIL was also needed to meet the increasing loads in the area.

It was agreed that additional 160MVA 220/132kV transformer each at Baripada and Siliguri sub-stations of PGCIL would be provided as part of regional scheme.

ED(Engg), PGCIL stated that PGCIL would shortly wind up old Siliguri S/S and create the equivalent facility at new Siliguri S/s with the additional transformer as proposed by WBSEB. CE, WBSEB agreed to it.

- 6.2 Member(PS) stated that construction of Baripada-Balasore 220 kV D/C line by GRIDCO was getting delayed and wanted to know the status of the line. He stressed need for early completion of this line. Sr.G.M. GRIDCO stated that 80% of the work was completed and the remaining work was in progress and would be completed by December 2006. He further stated that the line could be charged earlier at 132kV for which 132kV bays earmarked for JSEB which were lying unused at Baripada could be utilized them for the time being and they would release these 132kV bays immediately after the commissioning of the Baripada-Balasore line at 220kV. The proposal of GRIDCO was agreed.

## 7. Back-up transmission system for Talcher-II for SR.

- 7.1 Chief Engineer, CEA stated that the proposal for 400kV Mendhashal-Berhampur-Gazuwaka D/C line with 40% series compensation was discussed in the last standing committee meeting of Eastern Region held on 24-12-04 at Puri. The proposal was been further discussed in the Standing Committee meeting of the Southern Region in the context of their need for back up transmission system for Talcher. The proposal was also discussed in the TCC/Board meeting of Southern Region and they had agreed for technical proposals. The requirement was to add the following transmission system in ER and ER- SR inter-connection.

**A: Strengthening in ER system**

- a) Talcher- Rourkela 400 kV D/C

**B: Strengthening in ER- SR system**

- a) Mendhashal(Bhubneshwar)-Berhampur-Gazuwaka 400kV D/C with 40% series compensation and 400kV switching station at Berhampur for providing reactor.
- b) 3<sup>rd</sup> 500 MW HVDC back-to-back module to be considered at a latter date.

It was proposed to have the system under A as part of regional transmission system with transmission charges pooled within the ER system, and the system under B (a) as part of regional transmission system of ER and SR in 50:50 ratio, and the system under B (b) as part of regional transmission system of SR with 100% transmission charges for B (b) on account of SR beneficiaries.

Further, it was also proposed that the SR beneficiaries of Talcher-II would be seeking long-term open access (LTOA) through ER for 500 MW. The basis of 500 MW was that in normal operation, one HVDC back-to-back module at Gazuwaka may be kept for transmission of Talcher-II power to SR. With this, against full ex-bus dispatch of 1800 MW at Talcher-II, 1300 MW could be dispatched through Talcher-Kolar and 500 MW through Gazuwaka. The balance transmission capacity would be available for other inter-regional exchanges. If need of inter-regional exchange increases, 3<sup>rd</sup> HVDC back-to-back module at Gazuwaka could also be added at an appropriate time.

7.2 Member, WBSEB stated that the proposed 400kV Talcher-Rourkela line to be dedicated for SR, could be utilized in all likelihood for evacuation to SR. AGM, NTESE stated that as there was no share from Talcher-II for ER, let it be first examined by SR.

7.3 Member(PS) stated that LTOA arrangement would result in sharing of proportionate transmission charges where as STOA would entail only ¼ th transmission charges. As such providing transmission system with in the ER regional pool and having LTOA arrangement with SR may be a better option for ER with respect to sharing of transmission charges and also for SR who would get assured transmission capacity.

7.4 It was agreed that constituents of ER would look into the issue and inform their views to CEA within a month time.

7.5 It was also decided that the issue would also be deliberated in the next SCM of SR and the outcome would be taken up in the next SCM of ER. However, WBSEB further stated that after knowing the outcome of discussion in SR, the issue would be first discussed among ER constituents and then would be taken up at Board/Management level and thereafter, would be discussed in ERPC meeting.

7.6 ED(POWERGRID) stated that GRIDCO should take advantage of 400kV Mendhashal-Berhampur-Gazuwaka D/C line by creation of full fledged 400kV S/S at Berhampur in place of switching station being envisaged there and suggested to bear 100% transmission charge by GRIDCO for 400/220kV 2x315MVA ICTs, 2 nos. 400kV line bays and 4nos. 220kV line bays. M(PS) CEA stated that this was a good suggestion and GRIDCO should consider it and convey their views at the earliest.

## 8. **Transmission system for North Karanpura (1980 MW) and Maithon RB(1000MW).**

8.1 Chief Engineer, CEA stated that following transmission system had been evolved for power evacuation from North Karanpura (1980 MW) and Maithon RB (1000MW).



**With North Karanpura:**

- (i) North Karanpura – Sasaram 765kV S/C line with 2x1500MVA, 765/400kV s/s at Sasaram
- (ii) North Karanpura – Ranchi 400kV D/C line
- (iii) North Karanpura – WR pooling Station near Sipat 765kV S/C line with 2x1500MVA, 765/400kV s/s at WR pooling station near Sipat
- (iv) WR pooling station near Sipat – Sipat 765kV S/C line
- (v) WR pooling station near Sipat – Seoni 765kV S/C line  
{Alternatively North Karanpura – Sipat 765kV S/C in place of (iii) and Sipat – Seoni 765kV S/C in place of (iv) and (v)}

**With Maithon RB:**

- (vi) Maithon RB-Maithon PG 400kV D/C line
- (vii) Maithon RB – Ranchi 400kV D/C line
- (viii) Biharsharif – Sasaram 400kV D/C line

**With North Karanpura or Maithon RB for the Northern Region:**

- (ix) Sasaram-Fatehpur-Agra 765kV S/C lines with 765kV s/s at Agra having 2x1500 MVA 765/400kV transformers and 765/400kV s/s at Fatehpur having 2x1500 MVA 765/400kV. & 2x315 MVA 400/220 kV transformer and LILOs of Singrauli/Allahabad – Kanpur/Mainpuri 400kv lines at Fatehpur.

**If N. Karanpura comes first:**

With N. Karanpura: Sasaram-Fatehpur-Agra 765kV charged at 400kV; 400/220kV 2x315 MVA s/s at Fatehpur; LILO of Singrauli-Kanpur 400kV S/C and LILO of one circuit of Allahabad-Kanpur 400kV line at Fatehpur

With Maithon RB: Charging of Sasaram-Fatehpur-Agra line at 765kV with upgrading Fatehpur and Agra s/s by providing 2x1500 MVA 765/400kV transformers; LILO of Allahabad-Mainpuri 400kV D/C line at Fatehpur

**If Maithon RB comes first:**

With Maithon RB: Sasaram-Fatehpur-Agra 765kV charged at 400kV; 400/220kV 2x315 MVA s/s at Fatehpur; LILO of Singrauli-Kanpur 400kV S/C and LILO of one circuit of Allahabad-Kanpur 400kV line at Fatehpur

With N.Karanpura: Charging of Sasaram-Fatehpur-Agra line at 765kV, upgrading Fatehpur and Agra s/s by providing 2x1500 MVA 764/400kV transformers; LILO of Allahabad-Mainpuri 400kV D/C line at Fatehpur

- (x) Sasaram-Balia 400kV D/C (quad) line (with N.Karanpura or Maithon RB whichever comes first)
- (xi) Agra – Gurgaon 400kV D/C line (with N.Karanpura or Maithon RB whichever comes first)

8.2 The technical justification of the proposal was concurred.

8.3 CE(SP&PA), CEA stated that as regards sharing of transmission charges it was proposed that the works at (i), (ix) and (x) (xi) to be part of NR transmission system to be shared by NR constituents as their regional transmission system, works at (iii), (iv) and (v) to be part of WR transmission system to be shared by WR constituents as their regional transmission system, works at (vi), (vii) and (viii) to be shared by beneficiaries having allocation from Maithon RB power and work at (ii) to be shared by beneficiaries having allocation from North Karanpura.

8.4 In case ER constituents had allocation from the generation projects, transmission charge sharing would have to be borne by them as applicable.

8.5 As regards, Long term open access permission (LTOA) for transfer of 600MW power from Maithon RB (1000 MW) to the beneficiaries of Northern Region, sought by M/s. Maithon Power Limited (Generator) from POWERGRID, it was separately discussed with participants from the Generator/Developer(MoM by POWERGRID) in place of (iii). The proposal for LTOA was agreed ER constituents. It was also decided that for share of 300MW to be consumed by DVC from Maithon RB, DVC would confirm. In case DVC would not take it, the generator would require to seek LTOA permission for 900MW in stead of 600MW.

**9. Captive Power Plant at Angul of M/s Jindal Steel & Power Limited of 4x250MW connected OPTCL grid.**

Chief Engineer, CEA explained that M/s Jindal Steel & Power Limited (JSPL) would set up 4x250 MW CPP at their steel plant and trade the surplus through OPTCL network and regional grid system. The tradable power would be injected at Meramundali 400kV S/S through 400kV line for which provision of 2 nos. 400 kV line bays at Meramundali 400 kV S/s was agreed to by GRIDCO and 100% transmission charge for that would be borne by JPCL.

As regards, long term open access permission for transfer of 75 MW to Hissar (Haryana) from their power plants located in Orissa, sought by M/s Jindal Stainless Limited ( Generator), the same was discussed in a separate meeting with participants from the Generator/Developer (MoM by Powergrid).

The proposal for LTOA was agreed by ER constituents

**10. Charging of 400 kV Tenughat TPS- Biharsariff S/C line at 400 kV (presently under operation at 220kV).**

As there was no participant from JVNL/JSEB, discussion on the issue was deferred.

**11. Reactive Compensation in ER System.**

11.1 CE(SP&PA) stated that Powergrid had proposed the following reactive compensation and reconfiguration for voltage control in ER as well as NER system:

As part of Eastern Region Strengthening Scheme-I:

- i) 1 no. of 63 MVAR bus reactor at Baripada 400 kV S/s.
- ii) 1 no. of 63 MVAR fixed line reactor at Mendhasal 400 kV S/s end of each circuit of Baripada- Mendhasal 400 kV D/C line(total 2 nos. of reactors).

Reconfiguration and additional system strengthening works:

1. 1x63 MVAR line reactors was existing at each end of one circuit of Bongaigaon –Siliguri 400 kV D/C line of which Siliguri end line reactor was proposed to be shifted and installed as line reactor at Siliguri end of one circuit of Tala - Siliguri 400 kV lines.
2. Existing Line reactors at both ends Ranganadi-Balipara 400 kV D/C line was proposed to be re-configured as switchable line reactors at Ranganadi end and Balipara end line reactors to be kept as installed.
3. 1 no. 63 MVAR bus reactor was proposed to be added at Ranganadi HEP.
4. 2 x 63 MVAR bus reactors installed at 400 kV Siliguri bus was proposed to be shifted as line reactors at Siliguri end of 2<sup>nd</sup> and 3<sup>rd</sup> circuit of Tala-Siliguri 400 kV lines and added 2x125 MVAR bus reactors at Siliguri sub-station.
5. 1x 63 MVAR bus reactor existing at 400 kV Purnea was proposed to be shifted and installed as line reactor at Purnea end of Siliguri-Purnea 400 kV (twin moose) line and 2x125 MVAR bus reactors were proposed to be added at Purnea sub-station.

11.2 ED(Engg), Powergrid stated that in addition, the 400kV Biharsheriff-Balia D/C and 400kV Barh- Balia D/C lines would also be series compensated by 40% and this would be provided as part of Kahalgaon –II and Barh transmission system.

11.3 Members agreed to the above reactive compensation requirements and concurred to the proposals pertaining to ER.

**12. Transmission system for power evacuation from Subansiri Lower HEP, Inter-regional Transmission system for power export from NER to NR/WR and Transmission system for evacuation of power from Tripura Gas and Transmission System for power evacuation from Teesta-III (1200MW), and other hydro projects in Sikkim and Phunatsanchu-I (1000MW tentative) and other hydro projects in Bhutan.**

12.1 Member (PS) stated that a composite and comprehensive transmission system for generation projects coming in NER, Sikkim and Bhutan was evolved with identifying pooling stations and de-pooling stations keeping in view that the bulk power to be exported to deficit regions-NR/WR. He mentioned that for bulk power transfer to other regions, long distance transmission line from pooling point to de-pooling point would be required in which high power transfer capability transmission line through chicken-neck-area would require to be developed. In this context, he referred the meeting took place on 21.6.06 with the officers of West Bengal at Siliguri relating to right-of-way availability in the chicken-neck area of West Bengal.

12.2 CE (SP&PA) explained that the Siliguri/Bidhannagar would be the pooling points in case of Sikkim and Bhutan hydro projects and Bishwanath Chariyali in case of NER projects and a 6000MW transfer capacity would be build-up with HVDC 2xbi-pole lines from Bishwanath Chariyali to Agra via the chicken-neck-area by 2011-12. HVDC bi-poles terminals of 3000 MW capacity would be constructed at Bishwanath Chariyali and Agra matching with matching with Subansiri Lower HEP. The balance 3000 MW of line capacity would be utilized for providing 3000 MW HVDC capacity between Siliguri and Agra for transmission of hydro power of Sikkim and Bhutan pooled at Siliguri.

CE(SP&PA) further stated that long-term commitment for payment of long-term transmission charges is needed in order to tie-up the execution of the scheme. It was proposed that proportionate transmission charges for evacuation lines up to pooling station in NER including anchoring transmission system and full transmission charges for the NER to NR/WR transmission system be committed by the utilities outside NER to whom allocation of power from Kameng and Subansiri Lower HEP was made. In case states of ER sought allocation from these generation projects, they would also be required to share the transmission charges on long-term commitment basis. On query from WBSEB about the tentative transmission charges for the proposed system, CE (SP&PA) mentioned that it would depend on the quantum of energy transmitted and could be to some where in the range of Rs 1 to Rs 1.20.

12.3 Member WBSEB stated that WBSEB would examine the proposed transmission system and related issues and would revert back with their views.

**13. Transmission system for power evacuation from Tripura Gas, 1100 MW**

Chief Engineer (SP&PA) stated that transmission system for this project was planned independent of the proposed NER-NR/WR HVDC system envisaged with Subansiri Lower, Teesta-III etc. The proposed transmission system for Tripura gas would be Tripura gas-Silcher-Bongaigaon-Siliguri 400kV D/C line in which

transmission line upto Bongaigaon to be constructed with twin lapwing conductor and Bongaigaon-Siliguri section to be constructed with quad moose conductor, and 400/132kV at Tripura gas generation switchyard and 132kV lines to grid s/s in Tripura and 400/132kV substation at Silcher and 132kV lines connecting to grid s/s in Assam. For power delivery to NR, power wheeling through the existing lines in ER from Siliguri pooling point would be needed. For this strengthening of Eastern Regional grid was required by providing additional 400kV D/C quad line between Purnea and Biharsharif. Sale of power from Tripura gas to NR beneficiaries was proposed at delivery point of either Bongaigaon or Siliguri depending on tying-up of Bongaigaon-Siliguri section of the 400kV power evacuation link being built as a generator's system or as NR beneficiaries system.

As the power delivery to NR would require wheeling through ER system, there were two alternative options to ER constituents in regard to the issue of transmission charge sharing. In the first option, transmission charges for Purnea-Biharsharif 400kV D/C quad line might be pooled within the regional transmission system of ER and NR beneficiaries may seek long-term open access (LTOA) through ER for the capacity equal to their allocation from Tripura gas. In case ER constituents were not agreeable to this, the second option would be to built the Purnea-Biharsharif 400kV D/C quad line based on commitment of NR beneficiaries of Tripura gas and they could seek short-term open access (STOA) through ER for using part of ER system. View of ER constituents in this regard was sought.

Member WBSEB stated that the Board would study and examine the proposals for sharing of transmission charges and communicate the views.

It was decided that all the constituents would communicate their acceptance or other-wise of the option-1 to CEA within the next month and in case all were agreeable, the same would be adopted. However, if this was not agreed (or no response), the issue would be taken-up with NR constituents as per option-2.

#### **14. Upgrading Load Dispatch Scheme**

**14.1** Chief Engineer (SP&PA) stated that the requirement of state of art unified load dispatch scheme would be essential for efficient system operation and control of for all India power system for which Powergrid would have to formulate the scheme. The need to take-up works for revamping of their protection system was also emphasized.

**14.2** ED(Engg), Powergrid mentioned that every utility should install RTUs at their installations to built-up an efficient data acquisition and data management system for unified load dispatch scheme. Every one should also attend to the need of rectifying/upgrading protection system equipment. He further stated that a pilot project of Powergrid in Northern Region was under execution stage with various features like dynamic islanding, automatic system restoration. Chief Engineer, WBSEB wanted to know whether the specification of standard RTUs and communication protocol would be available. ED, Power Grid stated that Powergrid would provide/circulate all the data relating to standard specifications of RTUs, Communication protocol to the utilities of the region. Chief Engineer,

SP&PA stated that Power Grid should work on overall proposal and take up its implementation work expeditiously. All the members were agreeable to the need for building unified scheme.

**15. ER strengthening scheme-III and interconnection of new power plants of DPL to Durgapur (Parulia) substation of POWERGRID.**

15.1 Chief Engineer (SP&PA) requested Powergrid to present their proposal relating to evacuation of exportable power and export of the same to outside the Eastern Region:

15.2 Powergrid then gave a presentation on the following transmission system under Eastern Region Strengthening Scheme-III:

- Durgapur(Powergrid) – Maithon 400kV D/C line with twin lapwing conductor
- Jaypore – Bhadravati 400kV D/C line with quad conductor and 40% series compensation

Explaining the basis of the proposal, DGM, Powergrid stated that the study carried out by them had shown that the 400 kV D/C line with twin lapwing conductor and 400 kV Jaypore-Bhadravati D/C line with Quad conductor and 40% series compensation, would be required to meet normal and contingency conditions for export of exportable surplus power of ER available from DPL extn, Purulia PSS and Sagardighi. M(PS) observed that the power flows in the load flow diagrams were not clear and suggested use of AUTOCAD program to improve quality of presentation for such study results. Powergrid took a note of that. On query from M(PS) on availability of space at Parulia(Durgapur), Powergrid informed that there would not be any space constraint.

15.3 Member, WBSEB stated that WBSEB has already given consent to the proposal of Powergrid for construction of Durgapur(Powergrid) – Maithon 400kV D/C line, and for 400kV Jaypore-Bhadravati D/C line, they would provide their views after scrutinizing the studies presented by Powergrid. He further stated that WBSEB had also forwarded an additional agenda item to CEA to include for discussion in the meeting relating to intra/inter regional transmission system for export of surplus power (up to 2011-12) of West Bengal to WR and NR.

15.4 M(PS) stated that the proposal of WBSEB would be examined in CEA and could be discussed in the next meeting. He further stated that the requirement of 400kV Jaypore-Bhadravati D/C line would also be studied during evolving of transmission system for Ultra Mega Projects being envisaged during 2011-12.

15.5 ED(Engg), Powergrid requested WBSEB to take up ERSS-III issue with DPL and Member, WBSEB agreed to it.:

15.6 DCE, DVC stated that they were not agreeable to share any transmission charge for these schemes as were not having any share from the cited generation projects in West Bengal.

15.7 Chief Engineer(CP&ED), WBSEB requested PowerGrid to take over the existing Kolaghat- Rengali 400 kV S/c line. ED (Engg), Power Grid stated that this issue should be taken-up in the ERPC forum.

16. Member (PS) concluded the meeting with summing up of the outcome of the discussions and thanked all the participants.

#### Summary of the decisions

1. ERPC Secretariat to take-up the issue of pooling of transmission charges for Parulia-Jamshedpur-Baripada-Mendhsal 400kV D/C line in the TCC.
2. Proposal for 400kV substation at Bolangir in Orissa and other places in West Bangal and other states would be discussed in the next meeting based on the assessment of transformation capacity provided/planned at the regional grid substations in relation with the allocation of Central Sector share for the State.
- 3. Provision of additional 220/132 kV 160 MVA ICT each at Baripada and Siliguri substations of PGCIL under regional scheme was agreed.
4. GRIDCO would utilized the 132 kV bays at Baripada substation of PGCIL earmarked for JSEB, for charging Baripada-Bolangir 22kV D/C line at 132kV. This arrangement would continue till December 2006 and GRIDCO would release the 132kV bay at Baripada immediately after commissioning of Baripada-Bolangir 220 kV D/C line at 220kV.
- 5. | The constituents of ER to look into the proposal of Talcher-II related transmission system to be built as regional pooled transmission system of ER together with LTOA to SR vis-à-vis, system to be built at transmission charges by SR together with STOA to SR and inform their view to CEA within a month time.
- 6. Technical justification of the proposed transmission system for North Karapura and Maithon RB was concurred.
- 7. LTOA for transfer of 600MW power from Maithon RB (1000 MW) to the beneficiaries of Northern Region, sought by M/s. Maithon Power Limited, was agreed by ER constituents. For share of 300MW to be consumed by DVC from Maithon RB, DVC would confirm. In case DVC would not take it, the generator would require to seek LTOA permission for 900MW in stead of 600MW .
8. LTOA for 75 MW from CPP at Angul of M/s Jindal Steel & Power Limited from their 4x250 MW plant connected to OPTCL grid to Hissar in Haryana was agreed.
9. Proposal for reactive compensation through provision of new reactors, rearrangement of reactors and series compensation at per Para 11 was agreed.

**List of the participants to the Standing Committee Meeting on transmission planning in Eastern Region held in Puri on 24.12.04**

S/Shri Name	Designation/Organisation	Tel. Nos.
<b>CEA</b>		
V. Ramakrishna	Member (PS),	011-26102721
A.K. Asthana	CE (I/C)	011-26102045
<b>POWERGRID</b>		
R.N. Nayak	ED (Engg),	0124-2571801
Y.K. Sehgal	DGM	0124-2571815
B. Sharma	AGM,(O&M)	
<b>EREB</b>		
M.K. Mitra	SE	033-24236005
B. Sarkherl	EE	033-24235967
A. Roy	AEE	- do -
<b>DVC</b>		
Asuthosh Chakrabarti	DCE SPM,	
R.K. Das Gupta	DCE, Const	
<b>WBPDC</b>		
K. Samanta	DGM	
<b>WBSEB</b>		
M.K. Ray	Member,	
A.K. Chattopadhyay	CE (CPEB)	
P.C. Saha	SE (Coml)	
<b>DPL</b>		
S.P. Datta	MD,	
A.K. Chakraborty	DGM (POWER)	
<b>GRIDCO</b>		
B.K. Behera	Sr. G.M. Corporate Plg.	
N.C. Sahu	Sr. Gen. Manager	
C.B.K. Mohapatra	Manager	
<b>BSEB</b>		
R.N. Sharma	Chief Engineer	0612-2226722
Rakesh	Sr. Engg,	
<b>NTPC</b>		
N.N. Mishra	GM (PE)	
Pramod Kumar	DGM (PEE)	
S.S. Barpanda	Chief Manager(O)	