

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

No.66/5/99-SP&PA / 1730-37

dated : 21-9-2000

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|---|--|
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Sub: Summary record of discussions of the Standing Committee on Power System Planning in Eastern Region.

Sir,

Enclosed please find a copy of Summary Record of discussions of the Standing Committee meeting on Power System Planning in Eastern Region held in C.E.A, Sewa Bhawan, New Delhi on 26.9.2000 for information and necessary action.

Kindly acknowledge receipt.

Yours faithfully,

Encl : As above.

S.K. Thakral
(S.K.Thakral) 27.9.2000
Director(SP&PA)

*4377/4012
9/11/00*

S.K. Thakral

*A copy given to
DAM/Engg - HVD
31.11*

Summary Record of discussions of the meeting of Standing Committee on Power System Planning in Eastern region held on 26.9.2000 in CEA headquarters, New Delhi.

1. List of Participants is at annex I.
2. Chief Engineer (SP&PA) welcomed the participants and stated that the present meeting of the Standing Committee had been called at a short notice in view of two urgent issues relating to (i) Tala transmission system and (ii) augmentation of capacity at HVDC back to back station at Gazuwaka for which immediate decision was needed to be taken. Three additional items for which the agenda note had been circulated could also be discussed. Thereafter, the agenda items were taken up for discussion.
 - (1) Transmission system associated with Tala HEP (1020 MW) in Butan and strengthening interconnection between Eastern Region and Northern Region.

Chief Engineer(SP&PA) stated that Tala HEP with an installed capacity of 6x170 MW was under implementation by Royal Govt of Bhutan with the assistance of Govt. of India. Most of the power from the Project was to be utilized in India. The first unit of the project was scheduled for commissioning by Oct 2004 and all the six units were expected to be commissioned by end 2004-05. The full benefits from the project are likely to be available during monsoon period of 2005. At the time of conceiving of the project in 1993 when the Eastern region was deficit in power and in view of the close proximity of Eastern Region to Bhutan, it was envisaged to utilise the full output from the project in Eastern Region. However, in the present situation with Eastern region facing surplus condition in the range of 1500-1800 MW peak power was exported to the adjoining Regions through the available inter-Regional links. In spite of above, the Eastern Region system was facing high frequency operation during other than peak hours. NTPC have been requesting for augmentation of the transmission capacity for increasing export of surplus power to other regions to facilitate improving the PLF of their plants. The transmission system for evacuation of power from Tala HEP had originally been planned considering Northern Region constituents as the main beneficiaries of the Tala power as decided in the meeting held in Ministry of Power in Dec 99. In response to representations of Chairman EREB/WBSEB the Ministry of Power are re-considering allocation of Tala power and as such the transmission system originally planned for Tala HEP has been subjected to review by the CEA. The results of the studies carried out by CEA reveal that transmission system as already planned with certain augmentation etc would meet the requirements of delivery of share of Tala power to eastern Region as well as Northern Region as the case may be. This system would also facilitate wheeling of surplus power from thermal projects in Eastern Region/HE Projects in North Eastern Region to the Northern Region. The system already planned covered provision of 1x315 MVA, 400/220 kV ICTs each at Siliguri, Purnea and 400/220 kV Sub station at Muzaffarpur. Besides this proposals for establishment of 400 kV S/S at Siliguri, Purnea and Baripada etc in Eastern Region have been accorded clearance and are under implementation.

In view of the large scope of works covered under Tala transmission system it is anticipated it would need at least 4 years for POWERGRID to implement the project particularly in light of the part of project is envisaged to be taken under joint venture with

a Private Sector participation. The proposed system besides facilitating evacuation of power from Tala HEP and other Hydro electric projects in North Eastern Region would also make provision for integrated operation of Eastern Region and Northern Region thus paving way for formation of National grid. It would provide utilization of diversity of the peak demand in both the regions. He then requested the other participants to give their view.

Chief Engineer WBSEB stated that they would first like to know allocation of Tala HE power. Their comments are given in the letter handed over during the meeting (Annex-II). He stated that Eastern Region was already facing very low hydro thermal mix which was 13:87 in Eastern Region and 3:97 in West Bengal. He further stated that a very vast extensive transmission system had been proposed for evacuation of Tala HE power and in case 100% of Tala power was allocated to Eastern Region there would not be any need for planning such an extensive transmission system. He further stated that with the changing scenario Eastern Region was not likely to face surplus condition in the future as was being projected. He stated that Eastern Region was already facing a shortfall during peak period and load shedding to the tune of 300 MW in the Eastern Region had to be resorted.

Chief Engineer (SP&PA) stated that as already pointed out allocation for Tala HE power is under review of Ministry of Power. Pending final decision in this regard an attempt has been made for planning the transmission system for evacuation and utilisation of power from Tala HE project considering all the three options.

- (i) 100% allocation of Tala power to Eastern Region.
- (ii) Allocation of a part of Tala power to Eastern Region and the balance to Northern Region constituents
- (iii) Allocation of 100% Tala power to Northern Region.

In the above two cases export of equivalent thermal power to Northern Region has been considered.

It is observed that even in case of full allocation of Tala power to ER the system as planned for Tala HEP would fit into the system requirements with small additions/modifications. With the integrated operation of ER and NR in synchronous mode, benefits of hydro thermal mix of overall system will accrue to ER. It was observed that ER would have peak load conditions for 3-4 hrs of the day and during the balance period the region would be surplus necessitating export of power to other regions.

Superintending Engineer, WBSEB again stressed for improving hydro thermal mix in ER by allocation of Tala power to ER constituents. He desired to know the benefits in improvement of hydro thermal mix by way of integrated operation of ER and NR. He pointed out the need of hydro power in ER in view of system demand variations.

Chief Engineer, BSEB stated that there were two issues to be addressed :

- (i) Transmission system for evacuation and utilization of power
- (ii) Allocation of Tala HEP power.

He stated that with the integration of Eastern Region system with Northern Region the stability of the Northern Region system will be dependant on stability of Eastern Region. He stated that there was need for hydro power for Eastern Region to meet the peak hour requirements. The system planned should take care of providing hydro power from Tala project to Eastern Region. He desired to know the details of the transmission planning being made for development of National grid.

POWERGRID representative stated that the system developed would cater to both the requirements of evacuation of power from Tala HEP as well as transfer of surplus power whether thermal or hydro from ER to NR. Once connectivity was established between Eastern Region and Northern Region, hydro support would automatically become available to Eastern Region.

Chief Engineer (SP&PA) stated that as part of strengthening scheme of ER three 400/220 kV S/S had been conceived. These substations, in addition to the 400 kV substation at Muzaffarpur Extn and Purnea covered under the present scheme would provide enough capacity for drawal/utilization of Tala power in ER depending upon the quantum of Tala power allocated to ER. He further explained that the system covered under the present scheme forms a part of the development of National grid. He stated that it had taken about 30 years to have integrated operation of Regions. Initially the regional systems had been interconnected on the basis of asynchronous links and it was now opportune time to interconnect Eastern and Northern Region in synchronous mode which would form a part of National grid. The interconnecting links have to be planned to be strong enough keeping in view the flow of synchronizing power and also to take care of disturbances. He stated that CEA was open to consider the proposals for strengthening of ER for delivery/absorption of Tala power in the region. He further stated that the proposals of WBSEB for strengthening 400 kV system to Arambagh/Subhasgram had been examined on the basis of studies and results were given in the exhibit to the agenda note. It could be observed therefrom that there was not much flow of Tala power to these stations as these stations were located close to Farakka, Bakreshwar, Kolaghat TPS and benefits from Purulia pumped storage were also expected during Tenth Plan.

In response to CE, WBSEB's remark regarding low power development in North Bengal/left of Ganga river and different price tag of Tala power, CE (SP&PA) further explained that the present system takes care of strengthening of network in northern part of Bihar & West Bengal which has so far remained neglected. He further stated that ER is having peak demand of about 7500 MW and a change in power of the order of 250 MW results in excursion of frequency by 1Hz. Northern Regional capacity size being three times that of Eastern Region, under integrated mode of operation of Eastern Region and Northern Region the change in frequency of 1 Hz would correspond to change in power of about 800-1000 MW. Accordingly, with the integrated operation of two regions the frequency regime of Eastern Region would improve substantially and would result in reduction in frequency excursions. He further stated that issue of tariff had to be addressed in a different forum.

In response to observation of CE, BSEB about inclusion of 400 kV Barh-Muzaffarpur line under present scheme, CE (SP&PA) clarified that the proposal was under examination and may perhaps be covered under Barh transmission system. In response to the observation of CE, WBSEB regarding adequacy of transmission system planned to cover the outage of a 400 kV D/C line on account of tower failure etc. CE (SP&PA) clarified that the transmission planning criteria covered outage of only one 400

kV circuit. However incidentally the system being developed for interconnection of ER with NR, one on the Northern side under Tala transmission system and the other associated with Kahalgaon Extn, Barh etc. was strong enough to take care of outage of a 400 kV D/C line.

CE(SP&PA), CEA clarified that in the event the power from the Tala Project was allocated to both the Regions, ER constituents would be liable to share charges for the transmission system up to Muzaffarpur and balance transmission system extending up to Northern Region would be chargeable to Northern Region beneficiaries.

CE, BSEB and CE WBSEB stated that while they generally agreed to the proposal for transmission system associated with Tala HEP (1020 MW) in Bhutan and strengthening interconnection between Eastern Region and Northern Region but would convey their consent to the transmission system within a fortnight after consultation/approval with their Board authorities.

II. 2nd 500 MW module at Gazuwaka HVDC back to back station

CE(SP&PA) stated that a 500 MW module at Gazuwaka HVDC back to back station was in existence and operation at Gazuwaka providing an asynchronous connection between Eastern Region and Southern Region. About 400 MW power transfer was taking place over this station due to limitations in capability of the 220 kV network in Southern region. It was anticipated that by December 2000 full 500 MW power exchange will start over this link. Augmentation of this back to back station was being contemplated by provision of a second module of 500 MW since Eastern Region was likely to be surplus in energy and Southern Region would continue to face shortage of both peak and energy. The proposal had already been discussed in Standing Committee meeting of Southern Region and had been agreed to 'in principle' and the constituents of SR had agreed to share charges for Gazuwaka HVDC station augmentation and bear the cost of system augmentation required for absorption of power in Southern Region. It was observed that for exchange of 1000 MW transfer of power over this back to back station transmission system in Eastern Region would require strengthening. GRIDCO had proposed construction of 400 kV D/C line between Meramundali and Jeypore in place of 400 kV S/C proposed earlier which is being examined. Series compensation on both the circuits between Jeypore and Gazuwaka would be required for reliable exchange of power to the tune of 1000 MW over this link. CE, WBSEB stated that the proposal had already been discussed in 93rd meeting of EREB and they can recommend the proposal subject to the approval by EREB. CE, BSEB stated that their comments on the proposal will depend upon the tariff. Member Secretary, EREB stated that the proposal had already been discussed and agreed by the constituents of ER on technical basis in the EREB forum.

ADDITIONAL AGENDA ITEMS

1. Matching of 220 kV Purnea-Begusarai-Muzaffarpur D/C line by BSEB with installation of 400/220 kV grid S/S at Purnea by POWERGRID.

Chief Engineer (SP&PA) stated that a 1x315 MVA, 400/220 kV S/S was being established by POWERGRID at Purnea by Loop in and Loop out of one circuit of 400 kV Siliguri-Malda as a Central Sector Project. This S/S was being established to meet the power requirements of North Bihar area by supplying power over 220 kV Purnea-Begusarai-Muzaffarpur D/C line under construction by BSEB. Since the 400/220 kV S/S

was targeted for completion by Sept 2001 by POWERGRID, BSEB should make all efforts to expedite commissioning of the above line so as to match commissioning of 400/220 kV S/S. CE, BSEB stated that about 98% foundation work of the 220 kV line had been completed and tower members and conductors were available and construction of this line would start from Nov this year and they will make all efforts for completion of this line by Dec 2001.

2. Establishment of 400 kV S/S at Baripada by loop in and loop out of Kolaghat-Rengali S/C line

CE (SP&PA) stated that the proposal of POWERGRID for establishment of 400/220/132 kV Baripada by loop in and loop out of 400 kV Kolaghat-Rengali S/C line was agreed in principle by CEA for power supply to Balasore, Badrak, Daitry area of Orissa and for meeting the load demands of West Bengal and Bihar of Mosabani, Egra, Midnapur areas at 132 kV. He further required to know whether the 220/132 kV facilities were required to be established at this S/S in view of the West Bengal's letter that they may not be interested in drawing power from this S/S in light of system development in their own area. Superintending Engineer, WBSEB stated that Midnapur 132 kV S/S was upgraded to 220 kV and Arambagh-Midnapur 220 kV line was ready. As such earlier line proposed from Bariapada to Egra may not be required. However, provision of space for providing 132 kV level at Baripada in future may be kept. GM, POWERGRID stated that in case it was decided that 132 kV level at Baripada was not required they may not be going for acquisition of excess land. Chief engineer, BSEB stated that the proposal had so far not been examined by them and both BSEB and WBSEB stated that they would be sending their views on the proposal within a fortnight.

3. Augmentation of 400/220 kV transformation capacity at Biharshariff (existing capacity 630 MVA).

CE (SP&PA) stated that augmentation of 400/220 kV transformation capacity at Biharshariff by adding 3rd transformer had been linked to energization of Tenughat-Biharshariff line at rated 400 kV. Presently this line was charged at 220 kV. He desired to know the status of the proposal for charging Tenughat-Biharshariff line at 400 kV. Member secretary, EREB stated that in view of the prevailing conditions of the Tenughat 400 kV switchyard, charging of Tenughat-Biharshariff line at 400 kV was not envisaged in near future. Chief engineer, BSEB stated that there was not much progress for establishment of 400 kV switchyard at Tenughat due to fund constraints.

CE (SP&PA) stated that BSEB had made a separate proposal for augmentation of power supply to Patna by construction of a 220 kV D/C line from Sasaram to Khagaul via Arrah. CEA had examined this proposal and found desirable to strengthen power supply to Patna by construction of 220 kV D/C line from Biharshariff to Khagol via Parsabazar thus forming a 220 kV ring around Patna. This proposal was found to be technically superior as the power supply point in both the cases was Biharsharif and at present there was no 220 kV level at Sasaram. Member secretary, EREB stated that proposal for construction of 220 kV D/C line from Sasaram to Khagaul had already been discussed in EREB forum and agreed. He requested that an early decision on this line needed to be taken, as this was one of the conditions of BSEB to sign the BPTA for the transmission strengthening Scheme of POWERGRID which was held up for want of BSEB signing BPTA.

List of participants

Central Electricity Authority

1. Shri V. Ramakrishna, Chief Engineer (SP&PA)
2. Shri S.K. Thakral, Director(SP&PA)
3. Dr. Prabhat Mohan, Dy. Director(SP&PA)
4. Shri A.K. Saha, Asstt. Director(SP&PA)

EREB

1. Shri B.K. Misra, Member Secretary

POWERGRID

1. Shri V.K. Prasher, General Manager(Engg.)
2. Shri Avinash M. Pavgi, C.D.E.(Engg.)

NTPC

1. Shri A.K. Gupta, CDE (PE.Elec)

BSEB

1. Shri A.U. Bhatt, Chief Engineer/Trans

WBSEB

1. Shri H. Chatterjee, Chief Engineer (CP&ED)
2. Shri K.N. Mukherji, Superintending Engineer, CP&ED