

Summary record of the discussions of the meeting of Standing committee to discuss issues relating to power system planning in Eastern Region held on 8.2.2000

The list of participants is given at Annex-I.

Member Secretary, EREB welcomed all the participants and stated that the Standing committee to discuss issues relating to power system planning was meeting after a gap of 3 to 4 years. It was common feeling of all the participants that the Standing Committee should meet at least once in a year. He further stated that based upon the operating experience of the Eastern Regional grid which was running at high frequency during most of the times strengthening of Eastern Regional grid for export of power to other regions was necessary. With the commissioning of 500 MW HVDC back-to-back station at Gazuwaka on 400 kV Jeypore-Gazuwaka D/C line and Balimela-Upper Seleru line the capability of transmission of power from E.R. to S.R. was about 650 MW. However, it was not possible to transmit more than 300 MW unless hydro stations at Indravati and Balimela were despatching maximum. During export of power to S.R., certain 400, 220 and 132 kV lines in Orissa get critically loaded and no redundancy was available in the system. Power transfer to Northern region was also limited to about 60 to 80 MW. While Sikkim has got an allocated share of about 65 MW in the Central Sector generation of Eastern Region it was not feasible to supply more than 15 MW of power to Sikkim due to lack of adequate transmission facilities. In a Board meeting of the EREB a proposal for construction of 132 kV Siliguri-Melli line was considered and approved by the Board. Summarizing he stated that the system planners may look into the above aspects while developing the transmission system in the Eastern grid.

Director, GRIDCO stated that while an ambitious transmission plan had been envisaged in the constituent states of E.R due to resource constraints and consequent slow implementation subtransmission sector had so far been neglected in the Eastern Region. This has resulted in under utilisation of generating capacity for several years resulting in huge loss of power and revenue. He desired that construction of various line sections which would result in formation of National Grid should be taken up in line with the National highways and the cost should be borne by the Central Govt. as this high financial burden cannot be borne by the constituent States.

Secretary, Govt of Sikkim stated that so far the State of Sikkim, which was a constituent of Eastern Region grid had so far not been strongly interconnected with the Eastern grid and therefore the State was not able to meet the increasing load demand. He requested that Eastern grid should be extended to Gangtok either from Rangit or Siliguri so as to facilitate Sikkim to meet the growing load demand and minimize load shedding. He also expressed his desire that the Standing committee should meet at least twice a year so that the constituents can express their ideas and take part in the development of the regional transmission system.

ED, POWERGRID expressed the necessity/requirements of the frequent meetings of Standing committee which helps in identifying short and long term requirements.

Chief Engineer (SPA) CEA welcomed all the participants to the Standing Committee meeting and thanked Member Secretary, EREB for making excellent arrangements for the meeting. He stated that the Standing Committee could not meet during last 2-3 years as there were not many Central Sector projects/specific issues to be discussed regarding transmission system planning in Eastern Region. However, certain short term requirements for the strengthening of the Eastern grid had been discussed in the Planning committee of the EREB and the same were also agreed to 'in principle' by CEA and POWERGRID had already gone ahead with execution of such works. He stated that occurrence of high frequency in the Eastern grid was not only on account of slow growth of transmission system but also due to low load development in the constituent States of Eastern region grid. For export of power from Eastern region grid to other regions certain short term solutions had been processed. He expressed that with the development of back-to-back station at Sasaram and load growth in the Eastern Grid in the coming years the frequency regime may improve.

The agenda items were then taken up.

1. Strengthening of transmission system of Eastern Region for export of surplus power from Eastern Region to Southern Region

Chief Engineer (SP&A), CEA stated that for export of surplus power from E.R. to S.R., results of the studies carried out in CEA show that priority completion of Indravati-Theruvalli 220 kV 2xD/C lines under construction by GRIDCO was necessary. For full utilization of capacity of inter-regional links between ER and SR i.e. 500 MW HVDC back-to-back station at Gazuwaka on-Jeypore-Gazuwaka 400 kV D/C line and Balimela-U. Sileru 220 kV S/C line (150 MW) on reliable basis strengthening of GRIDCO/E.R grid by construction of (i) 400 kV Talcher-Meramundali D/C line (ii) 400 kV Meramundali-Jeypore S/C line and 400 kV Jamshedpur-Rourkela second circuit were necessary.

Director (Coml.), GRIDCO stated that the construction on 220 kV Indravati-Theruvalli D/C line was in progress and out of total location of 292 Nos. stubs have been set on 160 locations upto Sep'99 and the line was targeted for completion by June 2000. He further stated that 220 kV level at Meramundali 400/220 kV S/S would also be ready by June 2000. Second 220 kV D/C line between Indravati-Theruvalli would be completed by Dec 2001.

ED, POWERGRID stated that survey on Talcher-Meramundali 400 kV D/C line had been completed and other pre-construction activities were in progress. The line would be completed by 2002. He added that FR for Jamshedpur-Rourkela 400 kV second circuit was under preparation and BPTA had to be signed by the constituents of ER. He stated that the line would be completed by 2002.

After brief discussions all the participants agreed for taking up Meramundali-Jeypore 400 kV S/C line and Jamshedpur-Rourkela 400 kV second circuit as a central sector regional project as these lines would facilitate transfer/export of surplus power from

Eastern region to Southern region thereby resulting in reduction of burden of fixed charges of central sector generating station on the Eastern region constituents to some extent.

2. Review of Transmission System associated with Tenughat TPS Ext (3x210 MW)

Chief Engineer (SP&A) stated that the transmission system for Tenughat Ext (3x210 MW) and North Karampura TPS had earlier been planned in an integrated mode as both the stations were earlier planned for commissioning in the same time frame. In view of the possible gap of 4-5 years on completion of these projects the transmission system requirements for Tenughat stage II (3x210 MW) had been reviewed and were given in the agenda note. He further added that in view of the increasing load demands in Ranchi/Hatia area it was considered that LILO of Patratu-Chandil 220 kV D/C line at Hatia and 220/132 kV Hatia substation might be taken ahead of commissioning of Tenughat TPS Extn. and its associated transmission system. Since the above arrangement would provide a 220 kV inter connection between Hatia and Chandil and also in view of the space constraints at Chandil proposed construction of 220 kV Ranchi-Chandil might not be required. After brief discussions the above proposals were agreed.

3. Transmission system under construction in the constituent states of ER during Ninth Plan

A number of transmission works which formed a part of Sixth plan, Seventh and Eighth plan works in the constituent states of the region had either not yet been taken up or there had been very slow progress resulting in weak transmission system. This had also contributed to slower load growth in the constituent states than as projected in the EPS report. CE (SP&A) stated that with the passage of time certain line sections/substations which had been approved earlier might not be required now or a change in the configuration may be needed. He requested the state representatives to review these works and identify the changes needed and also to expedite completion of the transmission works, which would facilitate meeting the load demands in reliable manner.

BSEB representative stated that in view of the changed circumstances Dehri-Garwah Rd 220 kV D/C line alongwith 220/132 Garwa Rd substation may not be needed now. He further stated that due to forest clearance and funds constraints etc. the work on 220 kV Ramchandrapur-Chaibasa D/C line and associated substations was slow. He added that work on revival of Fatwah-Hazipur 220 kV D/C line, towers in certain section of which in the Ganges river crossing had failed, was not being taken up. Target date of completion of the balance works is as given in the Annex-II.

Director (Coml.), GRIDCO stated that the construction of Rourkela-Joda 220kV D/C line had now been dropped in view of the changed circumstances. As stated earlier Indravati-Theruvalli 220 kV D/C (first line) was targetted for completion by June 2000 and second line by Dec, 2001. Rest of the works were being taken up in accordance with the inter-se priority and funds available.

The progress of works and target of transmission works in West Bengal is given in the Annex-II.

4. Integration of Sikkim Transmission system with Eastern Grid

For enabling Sikkim to draw its full share from the Central sector stations located in Eastern Region a proposal for construction of 132 kV D/C line between NJP and Melli with 132/66 kV S/S at Melli as central sector transmission system was agreed in the EREB meeting held on 24.8.99. The proposal was reviewed on the basis of load developments in Sikkim and feasibility of construction of transmission lines in Sikkim and it was found that LILO of one circuit of Rangit-Siliguri 132 kV D/C line at Gangtok and establishment of 2x50 MVA, 132/66 kV substation at Gangtok as a central sector transmission system may be a desirable option. The proposal was discussed and agreed by all the participants. POWERGRID was requested to expedite construction of the line.

5. Transmission arrangements for strengthening Purnea (POWERGRID) - Purnea (BSEB) link

It was explained that LILO of 132 kV Purnea-Dalkhola S/C line at Purnea(POWERGRID) substation and augmentation of Purnea S/S by installation of 1x100 MVA 220/132 kV transformer so as to strengthen 132 kV interconnection between Purnea (POWERGRID) and Purnea(BSEB) was discussed in the 90<sup>th</sup> EREB meeting held at Gangtok on 15.4.98 and agreed to. FR for the above works had recently been approved by GOI. CE(SP&A) stated that BSEB have now proposed that in place of the above LILO arrangements an additional 132 kV line be constructed between Purnea (BSEB) and Purnea(POWERGRID) for having an alternative source of power at Purnea (BSEB) to supply power to adjoining areas including start up power supply to Barauni and Muzzaffarpur TPS in case of failure of PGCIL grid.

It was explained by ED, POWERGRID that LILO arrangements were proposed due to difficulties in construction of new line around Purnea area due to Right-of-way problem. He stated that even during the event of failure of 220 kV S/S (PG) at Purnea, arrangement could be made to supply power from Dalkhola to Purnea (BSEB) by appropriate switching arrangements. It was explained that the approved LILO arrangement was also superior option from cost considerations.

The proposal was further discussed and it was agreed to by all the participants that the approved scheme of LILO of Purnea (BSEB) - Dalkhola 132 kV line at Purnea (POWERGRID) is technically and economically superior proposition.

6. Transmission system requirements in Eastern region during 10<sup>th</sup> Five Year Plan and beyond

It was explained by CE(SP&A), CEA that during the 10<sup>th</sup> Plan (2002-2007) the generating capacity proposed to be added in the Eastern Region was 10308 MW. To match

with this generating capacity, appropriate addition to the existing transmission system and sub-transmission system will need to be built so that the additional power can be made available to cater to the loads in the Eastern Region. Max. load demand in ER during 1999-2000 (upto Dec, 99) has been about 7100 MW as against projected peak load demand of 10357 MW in 15<sup>th</sup> EPS during 1999-2000. There have been constraints in transmitting power available on the super grid in the Eastern Region to the loads in the Eastern Region, on account of constraints in the transmission, sub-transmission and distribution system. These constraints have to be overcome in a fast manner so that the growth in load demand is not constrained because of these factors.

Approach to the 10<sup>th</sup> Plan studies to be taken up and other assumptions like load projections etc given in the agenda note were explained. The participants were requested to furnish system details like projected substationwise load demands, existing tr. line/transformation capacity, capacitor installation as per the proforma circulated. The participants agreed to send details/observations to CEA.

The following additional items were taken up for discussion at the request of POWERGRID/other participants.

7. **Bokaro-Tenughat-Ramgarh 220 kV D/C line**

In order to provide interconnection between BSEB and DVC system, POWERGRID representative stated that proposal for construction of 220 kV Bokaro-Ramgarh D/C line and LILO of both the circuits at Tenughat by POWERGRID was discussed and approved in the Board meeting of EREB. However, issues relating to provision of bays for termination of these lines at DVC and BSEB substation remain to be sorted out. BSEB representative confirmed that the 220 kV bays at Tenughat TPS for the above LILO arrangement would be provided by BSEB. DVC representative also agreed for making arrangements for termination of the 220 kV line at Bokaro and Ramgarh.

8. **400 kV Raipur-Rourkela inter-regional line**

For export of surplus power from Eastern Region to adjoining regions POWERGRID's proposal for construction of 400 kV Raipur-Rourkela inter-regional link was discussed and agreed to be taken up as a Central Sector transmission project by POWERGRID. The constituent states agreed to bear the charges as per norms as inter-regional link. It was decided to take up this item in the next EREB meeting.