GOVERNMENT OF INDIA
CENTRAL ELECTRICITY AUTHORITY
SYSTEM PLANNING AND APPRAISAL DIVISN .
SEWA BHAWAN,R.K.PURAM,
NEW DELHI-110066

NO. 26/10/98/SPA- 1111 — 1124 DATED: 3rd August 1998.

Shri S.V.Deo
Technical Member (T&D),
Maharashtra State Electricity Board,
'Prakashgad', plot no G-9,
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Shri T.K.Prasad
Dy.General Manager (Elect.),
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Shri H.A.Patel
Chief Engineer (Trans.),
Gujarat Elecy. Board,
Sardar Patel Vidyut Bhawan,
Race Course, **BARODA-390007.**

The Chief Engineer (Trans.)
Nuclear Power Corporation
Vikram Sarabhai Bhawan,
Anushaktinagar,
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The Executive Director(T&P),
Madhya Pradesh Elecy. Board,
Shakti Bhawan, Vidyut Nagar,
JABALPUR .

Shri N.C.Goyal
Member (Power), NCA,
113-BG, Scheme No.74-C,
Vijay Nagar, **INDORE-452010.**

Shri R.Mehta
Secretary (Power)
Govt. Of Goa
PANAJI.

The Member Secretary,
W. R.E.B., MIDC Area,
Marol, Andheri East,**MUMBAI**

Shri S.C.Misra
Executive Director (Engg.)
Powergrid Corpn. of India Ltd.,
Hemkunt Chambers, 10th Floor,
89,Nehru Place, **NEW DELHI-19.**

Sub: Summary record of Ninth Standing Committee meeting on Power System Planning in WesternRegion during 9th Plan held on 18-7-98.

Sir,

Please find enclosed summary record of Ninth Standing Committee meeting on Power System Planning in Western Region during 9th Plan held on 18-7-98 at Mumbai for your information and further necessary action.

Yours faithfully,

(V.J..Talwar)
Director (SPA)

Copy for information and necessary action to:

i . Chief Engineer (Tr. Planning), MSEB,Mumbai
ii . Shri N.K.Jain , Chief Engineer (Planning), MPEB, Jabalpur
iii. Shri W.A.Dharme, Chief Engineer(E) ,NPC,Mumbai
iv. Shri T.Nagarajan., Chief Engineer(Elect),Electricity Dept., Panaji,Goa
v. Shri L.K.Wasnik , Superintending Engineer (O),WREB,Mumbai

(V.J. TALWAR)
Director (SP&A)

Summary Record of Discussions held during 9th meeting of Standing Committee for Western Region held on 18th July 1998 at Mumbai

1. List of participants is enclosed at Annex - I

2. Member (Tech.), MSEB welcomed Member (Power systems) CEA and other members of the Standing Committee to the meeting and expressed that the deliberations in the meeting would be fruitful.

3. Member (Power Systems) welcomed the participants. He mentioned that the last meeting of the Committee was held quite some time back and the Committee was somehow not active for quite some time. He stated that we were already in the second year of 9th five year plan and transmission requirements for the period were yet to be finalised fully. He informed the Committee that a dedicated group has been formed in CEA and this group has taken up System Studies for determining long term transmission requirements as well as identify the requirements for 9th five year plan. This Group would be interacting with the constituents and would bring out Report with in six months time.

4. Member (PS) further stated that during 1950s system planning was done on the basis of State as an unit and in 60s regional concept of planning was introduced and system planning was being done with the concept of regional self-sufficency. However for veriety of reasons during last 2-3 years Eastern Region has been facing surplus power conditions and neighbouring regions had been facing power shortages. Only part of surplus power could be transferred to other regions limited by available intra and inter-regional links. Since the system had been planned on regional self sufficency, adequate inter-regional and back up intra-Regional links had not been provided. He suggested that it was high time that planning should be done on All-India basis. CEA has formulated an approach to Transmission Planning Studies on these lines. He requested CE(I/C), CEA to give details.

5. Chief Engineer (I/C), CEA informed that Generation Planning Studies carried out in CEA have indicated a need based requirement of 17000 MW capacity addition during 9th plan in Western Region. However, only a programme of addition of 13000 MW was being considered by Government during the period due to resource constraints and the rest would be available during early 10th plan. For the purpose of determining transmission requirements by the end of 9th plan period it would be prudent to include the generation projects likely to be available during early 10th plan also. He added that the details of projects likely to be available by the end of 11th plan and 10th plan would be taken from planning wing of CEA. System Studies for determining transmission requirement for 11th plan would be carried out and a Master Plan would be evolved.. These would be tuned for 10th plan requirement and further fine tuned to arrive at 9th plan requirements.

6. Chief Engineer (I/C), CEA stated that about 3000 MW was planned to be added in Eastern Part of the Region, the power from which would need to be transmitted to load centers in the western part of the Region. Transmission system for evacuation of power from

these projects will have to pass through forest areas of Chhatisgarh and Vindhya Regions of M.P. A very limited right of way would be available through these forest areas and this fact will have to be kept in mind while determining transmission requirements to evacuate power from eastern part of the region and transmit to load centers in western part of the region. Share of the constituents of WR from the mega power projects in Orissa like CEPA would also need to be transmitted in this corridor. Generation planning studies also indicate that the Eastern Region would likely to be surplus in power during the 10th plan period and the power may need to be imported from Eastern Region and transmitted inter-alia to the Western Region utilising the same limited transmission corridors available. This will also have to be kept in mind while deciding transmission requirements for 9th plan in Western Region. Due to limited corridors availability, measures to increase the power carrying capacity of existing lines such as Series Capacitors, FACTS etc will also have to be considered.

7. He further added that as had been already explained by Member (PS), CEA,Regional systems had so far been planned based on the concept of regional self-sufficiency. Inter-regional HVDC Back-to-Back links were planned for emergency transfer of power and the transmission systems beyond these links had been planned only to cater to limited quantum of power exchanges. It is, however, seen that for last two years Eastern Region has been facing power surplus conditions. However, the power could not be transferred to other regions for want of adequate links/backup transmission system. In order to utilise the generation capacity available in the country optimally, free flow of surplus power - both offpeak and seasonal - among the various regions will have to be ensured. System requirements for full transfer of power (both ways) over these links will also have to be planned.

8. Executive Director, POWERGRID, agreeing with the above approach, mentioned that the regional boundaries no longer exists and inter-regional transfer of power on regular basis had become a reality. 20 MU/day was being transferred from Eastern Region to other regions. He suggested that depending upon load growth and generation programme transmission highway are required to be planned.

9. Secretary (Power), Govt. Of Goa welcomed the above strategy suggested by CEA. He stated that this would provide flexibility in operating the systems besides other attendant advantages.

10. On a query from NPC representative, CE (I/C), CEA informed that the planning philosophy and security standards adopted would be as per the Manual on Transmission Planning Criteria brought out by CEA in June' 94.

11. CE (I/C) stated that the peak demand of various constituents of Western Region by the end of 9th plan would be taken as per 15th EPS report. Sub-stationwise breakup had been arrived at from data furnished earlier by the constituents. These had been enclosed at Annex - II of the agenda. CE (I/C), CEA requested constituents to confirm these. CE, MPEB informed that there had been change in anticipated substationwise load demands and generation programme in their state, details of which would be furnished to CEA shortly. Member(PS) requested the constituents to furnish details of all genration projects which are being cleared under State's powers and all other relevant information positively by the end of July, 1998.

12. Member (PS) impressed upon the need for provision of Reactive compensation. He pointed out that the progress of installation of capacitors was rather tardy. Inadequate shunt capacitors not only result in deterioration in voltage profile of the system, but also result in increase in transmission losses and reduction in power transfer capability of the system. It had, therefore, been decided by CEA that in all future generation projects, provision of shunt capacitors will have to be made in project report for evacuation system. The value of capacitors to be provided to be determined based on capacity of generation project and system power factor. Suppose a 1000 MW station was being proposed, a provision of say 625 MVAr (at .85 pf) shunt capacitors would have to be made under project report for evacuation system. In case such station is under central sector, distribution of capacitors will be in the ratio of respective shares in the project. Simmilarly IPP project shared by more than one state, capacitors will be distributed according to shares in the project. Detailed guide lines were being prepared in CEA and would be circulated to all Utilities.

13. CE (I/C), CEA stated that in the planning studies a uniform power factor of .85 or .9 was being considered for loads incident at various EHV sub-stations. In actual practice power factor at these sub-stations is generally much below these values. He requested the constituents to provide actual power factor at all EHV sub-stations in the region and the same would be used in the studies to arrive at realistic reactive power compensation requirement for each constituent.

14. He further added that most of the 400 kV lines in the region were heavily compensated with fixed line reactors. Fixed line reactors were necessary in initial stages of system development to control over voltages due to sudden load rejection. These reactors lower the transfer capability of the lines. Western Regional Grid has grown quite strong and need of reactors for controlling O/V due to load rejection would not be necessitated in most of the cases. Removal of line reactors will not only increase the capability of line but would also improve the voltage profile of the region. Studies will have to be carried out to determine the possibility of removing these fixed line reactors. Possibility of converting these fixed reactors to switchable line reactors to enable line charging during restoration of grid and restricting O/V during light load conditions may have to be explored. He informed that MSEB had removed line reactors provided on Bhusawal - Kalwa 400 kV D/C line when the same was LILOed at Bableshwar.

15. Executive Director, POWERGRID stated that POWERGRID had also removed fixed line reactors in Southern Regional grid. He mentioned that these line reactors were not designed to be removed from line. Whenever these reactors were required to be removed, jumper have to be removed after taking shutdown. He suggested that line reactors may be removed from lines on seasonal basis. CE (I/C), CEA told that fixed line reactors which are required to control voltage during light load conditions are required to be made switchable.

16. Member (PS), CEA stated that Goa, situated at southern tail end of Western Region, was connected with the rest of the region through a 220 kV D/C line between Kolhapur and Ponda. Due to limited transfer capability of this line (LILOed at two points enroute), Goa was not able to draw its full share of power from Central Sector stations. Goa was also connected to Southern Region via Nagjhari – Ponda 220 kV D/C line and had 100 MW firm share in Ramagundam STPS. Goa cannot draw its share from Southern Region due to prevailing low voltage conditions in Southern Region. He stated that it was to be appreciated that Goa does not have any generation potential of its own and its requirements would necessarily have to be met over reliable transmission system. This would call for provision of a 400 kV link between Goa and rest of the region. A 400 kV sub-station at Kolhapur of MSEB was under construction. A 400 kV D/c line from Kolhapur to Ponda would suffice the purpose. The line would be taken up for implementation by POWERGRID. Tech. Director (EHV), MSEB stated that MSEB have no objection to the said proposal, however,backup transmission system up to Kolhapur may be needed to be strengthened. Member (PS), CEA assured that additional transmission system as identified on the basis of the studies would also be implemented. After further discussion it was agreed to provide a 400 kV D/C line between Kolhapur and Ponda.

17. Chief Engineer, Deptt. of Power, Goa stated that POWERGRID had carried out studies to determine the Capacitor requirement in transmission system of Goa. These capacitors would be installed by POWERGRID. He wanted to know the recommendations of the studies. DGM, POWERGRID informed that the report covering the results of the studies had already been submitted to Goa authorities and a decision from them was awaited. Member(PS) desired that Chief Engineer Deptt. of Power, Goa should visit POWERGRID office and sort out the matter. On a query from Power commisioner, Goa about mode of repayment for these capcitors, Member (PS) informed that terms & conditions for these capacitors were very soft. Finally, the recommendations made by POWERGRID in their report were accepted by Goa authorities. It was also decided that Goa authorities would visit POWERGRID in the first week of August, 1998 to formalise the contract.

18. The meeting concluded with a vote of thanks to the Chair.

ANNEXURE -I

LIST OF PARTICIPANTS

CENTRAL ELECTRICITY AUTHORITY

S/Shri

1. V.K.Sood	Member (PS)
2. V.Ramakrishna	Chief Engineer I/C
3. V.J. Talwar	Director

POWER GRID CORPORATION OF INDIA LIMITED

S/SHRI

1. S.C. Misra	Executive Director
2. R.D. Prabhakar	AGM (WRLDC)
3. I.S.Jha	DGM (Engg.)

NATIONAL THERMAL POWER CORPORATION

S/Shri

1. N.N.Misra	DGM (Engg)
2. T.K.Prasad	DGM/PE/ELECT

MAHARASHTRA STATE ELECTRICITY BOARD

S/Shri

1. S.V.Deo	T.M. (T&D)
2. K.N.Rathi	T.D.(EHVP)
3. V.D. Ambekar	C.E. (Tr.Pl.)
4. S.M. Majumdar	S.E. (Tr.Pl.)
5. A.B.Bhalerao	S.E.(Tr.Pl.)

MADHYA PRADESH ELECTRICITY BORAD

S/Shri

1. N.K.Jain	Chief Engineer (Plg.)
2. P.S. Naidu	AE (PSP)

GUJARAT ELECTRICITY BOARD

S/Shri

1. H.A.Patel	Chief Engineer (Trans.)
2. M.S.Patel	EE (Trans.Plg.)

NUCLEAR POWER CORPORATION

S/Shri

1. W.A. Dharme	Addl. Chief Engineer (E)
2. N.S.M.Rao	Addl.Gen. Manager
3. Rajesh Laad	Suptdg. Engineer

NARMADA CONTROL AUTHORITY

S/Shri

1. N.C.Goel	Member (P)

DEPTT. OF POWER, GOA

S/Shri

1. R. Mehta	Secretary (Power)
2. T. Nagarajan	Chief Engineer

WESTERN REGIONAL ELECTRICITY BOARD

S/Shri

1. L.K. Wasnik	S.E. (O)
2. M.R. Singh	E.E.
3. O.P. Singh	E.E. (O)
4. S.Satyanarayan	AD (S)

9th.

Meeting of Standing Committee on Power System Planning in Western Region held at Mumbai on 18.7.98

	Name	Designation	Organisation	Telephone	Fax
PG	1 S.C.MISRA.	E.D.C(Engg)	Powergrid.	6485079.	
PG	3 I.S. JHA	DGM(Engg)	- do -	6417128	6466823
PG	2 R.D. PRABHAKAR	AGM (WR)	Powergrid	8202691	65
NTPC	1 N.N. MISRA	DGM (Engg)	NTPC	91-536169	
NTPC	2 T. K. PRASAD	DGM/PE/ELEC	NTPC	91-538869	91-539462
MPEB	1 N.K. JAIN.	CE (Planning)	M.P.E.B.	0761-782114	0761-311696.
-do-	2 P.S. NAIDU	AE(RSP)	M.P.E.B	0761-782169	—"—
GEB	1 H.A. Patel	CE(TR)	G.E.Board	0265 312720	0265-337918 338164
-do-	2 M.S. Patel	EE(TR Planning)	G.E.Board	-	-
NPC	1 W.A. DHARME	Add. C.E(E)	NPC	5515567	022-5563349
-do-	2 NSM Rao	Addl. G.M	NPC	5581937	022-5563350
-do-	3 Rajesh Laad	SE	NPC	5566767	022-5563350
NCA	1 N.C. GOEL	Member (P)	N.C.A	0731-551144	0731-559888
MSEB	5 A.B. BHALERAO	S.E.(Tr.Pl.)	M.S.E.B	6422211	6452868
"	4 S.M. MUJUMDAR	S.E.(Tr.Pl.)	—"—	—"—	—"—
"	3 V.D. AMBEKAR	C.E.(Tr.Pl.)	—"—	—"—	—"—
"	2 K.N. RATHI	T.D.(EHVP)	—"—	—"—	—"—
"	1 S.V. DEO	T.M.(T&D)	—"—	6422211	—"—
Goa	2 T NAGARAJAN	CE, ~~Elec~~	E.D. Goa	224680	222354
—"—	1 R M ~~E~~ HTA	Secy Power Goa	Goa.	223196	222957
WREB	1 L.K. KOTNIS	SE(O)	WREB	6837418	
"	2 H.R Singh	EE	WREB		8370193
"	3 O.P. SINGH	EE (Opn.)	WREB	8322751	8370193
"	4 S. Satyanarayan	AD (S)	WREB	6704606	8370193