Central Electricity Authority
System Planning & Project Appraisal Division
Sewa Bhawan, R.K. Puram, New Delhi – 110066.

No. 51/4/SP&PA-2001/ Date : 24-10-2005.

To

Chairman & Managing Director , Power Trading Corpn. of India Limited, 2nd Floor, NBCC Tower, 15 Bhikaji Cama Place, NewDelhi 110066.	Chairman & Managing Director Power Grid Corp. of India Ltd. "Saudamini", Plot No.2, Sector-29, Gurgaon 122 001,Haryana..
Chairman & Managing Director, Andhra Pradesh Transmission Corp. Ltd., Vidyut Soudha,Hyderabad – 500 082.	Managing Director, Karnataka Power Transmission Corp. Ltd. Cauvery Bhawan, Bangalore 560 009.
Chairman Kerala State Electricity Board, Vidyuthi Bhawanam, Pattom, P.B. No. 1028, Thiruvananthapuram - 695 004.	Chairman Tamil Nadu electricity Board (TNEB), 800, NPKR Ramaswamy Malligai, Electricity Avenue, Anna Salai, Chennai - 600002.
Chairman & Managing Director Corporate Office, Block – I, Neyveli Lignite Corp. Ltd., Neyveli, Tamil Nadu – 607 801.	Secretary (Power), Electricity Department, Podicherry Admn., Pondicherry – 605 001.
Chairman & Managing Director , National Thermal Power Corp. Ltd. (NTPC), NTPC Bhawan, Core-7, Scope Complex-7, Institutional Area, Lodhi Road, New Delhi-110003.	Chairman & Managing Director , Nuclear Power Corp. of India Ltd., 3rd Floor,Vikram Sarabhai Bhawan,Anushakti Nagar, Mumbai – 400 094.

Subject: **Summary record of discussions of the meeting on Draft National Electricity Plan – Transmission held on 22nd September, 2005 at SREB, Bangalore.**

Ref.: (i) DO.Letter No. 51/4/2004-SP&PA/ dated 9th September from Member(PS), CEA and
(ii) letter No. 51/4/SP&PA-2001/ dated 13-9-2005.

Sir,

A copy of the summary record of discussions on Draft National Electricity Plan -Transmission document held on 22nd September 2005 at SREB, Bangalore is enclosed.

Encl. as above

Yours faithfully,

(B. M. Sethi)
Director(SP&PA)

Minutes of the meeting on Draft National Electricity Plan- Transmission taken by Member (PS), CEA on 22nd September 2005 at Bangalore.

The list of participants is at Annexure I.

Member (PS), CEA welcomed the participants and stated that the draft National Electricity Plan- Transmission was put on the CEA website (http://www.cea.nic.in/) in August 2005 inviting views and comments from stakeholders. While some of the stake-holders had sent their views/comments, it was felt prudent to discuss the Draft Transmission Plan in a series of meetings taken at regional level starting with the Southern Region. He stated that the National transmission plan had been prepared taking into account the generation addition programme during the 10th Plan and during the 11th Plan formulated by the Planning Wing of CEA under the National Electricity Plan for Generation. He further stated that many of the transmission schemes covered in the National Electricity Transmission Plan had already been finalised in various Standing Committee Meetings. He then requested Chief Engineer (SP&PA) to make a presentation giving the highlights of the Draft National Electricity Plan-Transmission.

2. Chief Engineer (SP&PA) gave a Power Point Presentation which is enclosed. The focus in the National Transmission Plan development was to connect all regions in the country into a National Grid system so as to have sufficient inter-regional transmission capacity along with commensurate intra regional transmission system. This would enable optimum development of hydro/thermal mix taking advantage of diversity based exchanges and facilitate trading of electricity. He explained the various scenarios with quantum of exchange of power between regions corresponding to peak load and off peak load for summer, winter and monsoon seasons. Based on which the transmission requirement had been assessed and Transmission Plan was evolved. He further stated that the North-Eastern, Eastern and Western Regions were already operating in synchronism and that the Northern Region was also likely to be operated in synchronism with rest of the regions by March, 2006 when 400kV Muzaffarpur-Gorakhpur D/C line along with other elements of Tala transmission system would be available. The Southern Region was inter-connected with the Eastern and Western regions through HVDC back-to-back and HVDC Bi-pole links. Time frame and proposal for synchronous interconnection of the Southern region was yet to be firmed up.

3. CMD, APTRANSCO stated that the periods of summer and monsoon peak in the Southern Region were different from the periods considered by CEA for other regions and suggested that dispatches corresponding to peak scenarios in the Southern Region may be considered. MS SREB and Director KPTCL also endorsed this suggestion. M(PS) CEA intimated that the projections had been made to capture the seasonal and time of day variation on all India basis and the data for pattern of variation had been derived from operation reports of the respective region. CE (SP&PA) CEA stated that additional scenarios for demand/availability projections could be included in the final report.

4. CMD, APTRANSCO wanted to know the basis for load projections considered in the studies. Member (PS) clarified the load projections were based on 16th Electric Power Survey with updates considering the past trend of load growth in the States.

5. CE (SP&PA), CEA stated that the program for synchronous interconnection of the Southern region with rest of India grid was yet to be firmed up. Inter connection between Parli in Western Region and Raichur in Southern Region through 400kV quad D/C line with TCSC was envisaged. But the total inter regional transmission requirements for the Southern region vis-à-vis already provided HVDC interconnection of Southern region with Eastern and Western regions did not justify this link in the 11th Plan time frame. The participants from the States of the Southern region and also from PTC were generally of the view that synchronous

inter connection of Southern region through the proposed Raichur (SR) and Parli(WR) link should be taken up preferably within the 11th Plan time frame itself so that the Southern region gets synchronous connectivity for export of surplus power to Western or Northern region. ED (Engg.) POWERGRID stated that more inter regional transmission system could be provided for meeting the requirement of Southern region by adding HVDC links which could be planned with Hirma or other future projects located in Eastern region in which power would be allocated to Southern region. Regarding synchronous connection of Southern region he stated that before taking a decision, it would be desirable to have some experience in AC inter-connected operation of other regions. He also stated that keeping Southern region in HVDC interconnection would have the advantage in arresting impact of major grid disturbances and also in quick restoration in the event of grid disturbances. M(PS) CEA stated that in view of POWERGRID reservation for the synchronous interconnection of Southern region with the other regional grids at this stage, interconnection decision in this regard could be taken at a later date when experience in AC interconnected operation of the other regions was available. M(PS) stated that the 400kV Raichur-Parli would be the only AC line connecting SR with WR and adequate defense mechanism could be planned in SR in the event of any disturbance in WR so that the SR grid is not affected by any disturbance in other regions. CMD, APTRANSCO supported the proposal and suggested that AC connection to SR needs to be seriously considered.

6. Director (Projects), NTPC indicated the necessity of having back-up transmission system for Talcher-II in the event of outage of Talcher-Kolar HVDC bipole. Member (PS) stated that the issue was proposed to be discussed in the Standing Committee Meeting.

7. CMD, APTRANCSO stated that apart from meeting the transmission requirement for import of power by SR, possibility for export of power out of Southern region should also be considered and the transmission system provided to enable SR to export power to other regions. She stated that in the recent past AP could not transmit its surplus power to NR. M(PS), CEA stated that the transmission capacity between SR and NR was limited by WR-SR/ER-SR inter regional capacity. But with the commissioning of ER-NR AC line by March'06, the constraints would be removed and then the back-to-back links at Gazuwaka and Chandrapur would be capable to transfer power by displacement to NR.

   ED (Engg.), POWERGRID stated that Talcher-Kolar HVDC Bipole link could be utilized for reversal of power from SR to ER without any technical constraint in the HVDC system. Director, NTPC expressed reservation that power in-take at Talcher from SR would not be feasible as AC transmission system in ER from Talcher onward was not planned accordingly. CE (SP&PA), CEA stated that even without reversal of power on Talcher-Kolar HVDC line, SR could export 1000MW at Gazuwaka, 1000MW at Chandrapur and upto full generation at Talcher-II by keeping HVDC Talcher-Kolar line without any flow. Also, the constraint in transferring their power upto NR would reduce with inter-regional connections between ER-NR and WR-NR. He stated that CEA would examine the need for any additional strengthening required beyond Talcher if need be.

8. CMD, APTRANSCO stated that the issue of Ib-Valley Project (2500 MW) in Orissa to be developed by NLC, and dedicated for the Southern region, was not yet closed and suggested that the transmission system associated with the Project should also be considered. M(PS), CEA wanted to know from NLC about the status of the project. CGM, NLC intimated that the project was in the formulation stage and necessary clearances from the Government of Orissa for the Project are yet to be obtained. ED(Operations) NPCIL stated that NPCIL were also contemplating addition of two more units of 1000 MW each at Kudankulam APP and the transmission system for these could also be considered. Director (Projects) NTPC also mentioned that they have revised the capacity addition programme by adding some of the units/stations, the transmission system for which needs to be planned. In this context, Member (PS) stated that the NEP-transmission plan was developed based on the generation

programme as available from Planning Wing of CEA. As such the generating companies could take up their revised/updated generation programme with Member (Plg.) CEA and if the generation programme was revised the transmission plan would also be reviewed. However, while the compiled, finalized and notified document on 'NEP-Transmission' would be updated only once in five year, there may a continuous need to update the Transmission Plan from time to time taking into account changes in generation programme. This review would be done from time to time.

9. Concluding the discussions, Member (PS), CEA requested all the participants to convey their views/observations in writing on the draft National Electricity Plan on Transmission so that these could be considered while finalizing the plan.

The meeting ended with a vote of thanks to the Chair.

List of Participants in the 21st SCM in SR held on 22-09-05 at SREB, Bangalore.

Organisation Name	Designation
CEA	
1. S/Sh. V. Ramakrishna	Member (PS)
2. A.K. Asthana	Chief Engineer (SP&PA)
3. B.M. Sethi	Director (SP&PA)
4. R. Saha	Dy. Director (SP&PA)
SREB	
5. S/Sh. K. Srinivasa Rao	Member Secretary
6. P. Patel	SE
7. M.R. Singh	SE
8. T.N. Padbhanabhan	EE
9. MVS Rajeshwar Rao	EE
10. T. Sankaran	AEE
11. A.K. Yadav	AEE
Bhavini/NPCIL/IGCAR	
12. S/Sh. S. Mittal	ED (Operation)
13. NSM Rao	Chief Engineer (EDTAPS)
14. M.K. Kannan	Chief Engineer (Tr),NPCIL
POWERGRID	
15. S/Sh. R.N. Nayak	ED (Engg.)
16. V.K. Aggarwal	AGM,SRLDC
17. Y.K. Sehgal	DGM (Engg.)
18. Gururaja Rao	DGM (Engg) SR-II
19. V.K. Verma	DGM, SRLDC
20. P.R. Raghuram	DGM,SRLDC
21. Mukesh Khanna	CDE (Engg.)
22. A Naga Raju	Chief Manager (comm.),SRTS-II
23. T Srinivas	Manager,SRLDC
24. S.P. Kumar	Manager,SRLDC
NTPC	
25. S/Sh. T Sankaralingam	Director (Projects)
26. Pramod Kumar	DGM
27. N. Balasundaram	Sr. Manager
28. S. Murugan	STA to D(PM)
PTC	
29. Sh. S.K. Dube	Director (O)
NLC	
30. S/Sh. N.S. Rajagopalan	CGM/PSE/NLC
31. S. Muthu	DGM/PSE/NLC
KPTCL	
32. S/Sh. Chandre Gowda	Director (Transmission)

33.	Divakara Rao K	Chief Engineer (O), LDC
34.	S. Viswanathan	Chief Engineer (E), P&C
35.	K. Balaraman	AEE Plg. & System studies

KSEB

36.	P.N. Mohanan	Member (Trans)

APTRANSCO

37.	Smt. R. Chatterjee	CMD
38.	S/Sh. V. Rama Narasimha Rao	ED(PS)
39.	P. S. Rama Rao	CE/GO

TNEB

40.	Smt. B. Shantha	CE
41.	S/Sh. V. Naganathan	CE(O)
42.	S. Balaguru	EE(System Studies)
43.	S. Sownyanaraynan	Consultant

Pondicherry

44.	S/Sh. D. Gunasekhran	Executive Engineer
45.	D.Stephen Joseph	Asstt. Engineer

Central Electricity Authority
System Planning & Project Appraisal Division
Sewa Bhawan, R.K. Puram, New Delhi – 110066.

No. 51/4/SP&PA-2001/ Date : 24-10-2005.

To

1.The Member Secretary, Southern Regional Electricity Board, 29, Race Course Cross Road, Bangalore 560 009. FAX : 080-22259343	2.The Director (Projects), Power Grid Corp. of India Ltd. "Saudamini", Plot No.2, Sector-29, Gurgaon 122 001,Haryana.. FAX : 95124-2571760
3.The Director (Transmission), Andhra Pradesh Transmission Corp. Ltd., Vidyut Soudha,Hyderabad – 500 082. FAX : 040-55665137	4.The Director (Transmission), Karnataka Power Transmission Corp. Ltd.,Cauvery Bhawan, Bangalore 560 009. FAX : 080 -22228367
5.The Member (Transmission), Kerala State Electricity Board, Vidyuthi Bhawanam, Pattom, P.B. No. 1028, Thiruvananthapuram - 695 004. FAX : 0471-2446452, 2444738	6. Member (Distribution), Tamil Nadu Electricity Board (TNEB), 6th Floor, Eastern Wing, 800 Anna Salai, Chennai - 600002. FAX : 044-28525587, 28525639
7.The Director (Power), Corporate Office, Block – I, Neyveli Lignite Corp. Ltd., Neyveli, Tamil Nadu – 607 801. FAX : 04142-252646	8.The Superintending Engineer –I, First Floor, Electricity Department, Gingy Salai, Pondicherry – 605 001. FAX : 0413-2334277
9. Director (Projects), National Thermal Power Corp. Ltd. (NTPC), NTPC Bhawan, Core-7,Scope Complex-7, Institutional Area, Lodhi Road, New Delhi-110003. FAX-011-24360912	10. Shri N. S. M. Rao Chief Engineer (Transmission), Nuclear Power Corp. of India Ltd., 12th Floor,Vikram Sarabhai Bhawan, Anushakti Nagar, Mumbai – 400 094. FAX : 022-25556513/25563350
11. The Director (Operation), Power Trading Corpn. of India Limited, 2nd Floor, NBCC Tower, 15 Bhikaji Cama Place, NewDelhi 110066. FAX-011-51659504	

Sub: **21st meeting of the Standing Committee on Power System Planning of Southern Region**

Sir,

Please find enclosed the minutes of the 21st meeting of the Standing committee on Power System Planning of Southern Region held at SREB, Bangalore on 22nd September, 2005.

A copy of the summary record of discussions on draft National Electricity Plan -Transmisssion document held in the first session of the meeting is also enclosed.

Kindly acknowledge the receipt.

Encl: As above.

Yours faithfully,

(B.M. Sethi)
Director (SP&PA)

Minutes of the 21st meeting of the Standing Committee on Power System Planning in SR held on 22nd September 2005 at SREB, Bangalore

Member (PS) CEA welcomed the participants.
Thereafter, the agenda items were taken up for discussion.

2. Confirmation of the minutes of 20th standing committee meeting held on 7th October, 2004 at Kalpakkam.

DD (SP&PA) mentioned that in the 20th meeting of Standing committee (SCM) held at Kalpakkam, the evacuation system for Kalpakkam PFBR was discussed and it was decided to be finalized by CEA after carrying out further studies for peak and off-peak conditions based on the input to be furnished by TNEB.The evacuation system for KPFBR was included in the current agenda for finalization. There were no other observations on the minutes of the last meeting.
The summary record was taken as confirmed.

3. Evacuation System for 500MWe Prototype Fast Breeder Reactor based Atomic Power Project at Kalpakkam (KPFBR)

DD (SP&PA) stated that the evacuation system for KPFBR atomic power project was initially envisaged to be KPFBR-Kancheepuram 230 kV D/C, KPFBR-Arni 230 kV D/C, KPFBR-MAPS 230 kV S/C line (with cable link) and one more 230kV D/C line to TNEB sub-station. Based on the input furnished by TNEB, CEA had conducted further system studies corresponding to peak and off-peak conditions in line with the discussion held in the 20th SCM and accordingly, requirement of the additional 230kV D/C line to Tiruporur was firmed up, which was later considered from KPFBR to Sirucheri S/S (about 15km away from Tiruprur) in lieu of 230kV KPFBR-Tiruporur D/C line as per the requirement of TNEB.

After discussions, the following transmission system for KPFBR evacuation system was agreed to:

KPFBR(500MWe) Evacuation System

(I) Step-up voltage of 230kV.
(II) Transmission Lines:-
  i) KPFBR - Kancheepuram 230 kV D/C line
  ii) KPFBR-Arni 230 kV D/C line
  iii) KPFBR-Sirucheri 230kV D/C line
  iv) KPFBR-MAPS 230 kV S/C (with one spare phase) –cable link*
(III) Requirements of 6nos. 230kV line bays at KPFBR for construction of three nos. 230kV D/C lines to Kancheepuram, Arni and Tiruprur sub-stations of TNEB. Bay(s) for KPFBR-MAPS link would be additional.

* The interconnection is envisaged to facilitate operation of KPFBR station as per the requirement of the Project Authority, BHAVINI and would not be an evacuation line. The cost of the link and associated bay/equipments etc. would be borne by BHAVINI.

4. Evacuation System for Tuticorin JV-TPS (2x500MW) under joint venture of TNEB-NLC.

DD(SP&PA) mentioned that NLC vide their letter dated 16.3.05 indicated the tentative allocation of power from the project and the States of Southern Region were the beneficiaries. The project was therefore considered as a regional project. Participants wanted to know whether the allocation was made by MoP or not. NLC representative stated that the

proposed power allocation from the project was cited in their letter on the basis of CEA data. CE (SP&PA) CEA stated that NLC would need to intimate the firmed-up allocations.

DD (SP&PA) stated that transmission system for evacuation from the project was studied in CEA corresponding to 2011-12 condition by taking into consideration the latest generation capacity addition program and also the data furnished by TNEB in respect of their 220kV substation-wise load and transmission network. He explained the following four transmission alternatives considered in the studies including the one suggested by TNEB.

Tuticorin JV-TPS Evacuation Arangements

Option-I (TNEB Proposal):

- Tuticorin JV TPS-Karaikudi 400 kV D/C
- Tuticorin JV TPS - Madurai 400 kV Quad S/C
- Karaikudi 400 kV SS-Pugalur 400 kV S/C
- Pugalur 400 kV SS - Arasur 400 KV D/C
- 220kV inter-connection with existing Tuticorin TPS

Option-II:

- Tuticorin-Karaikudi 400 kV D/C
- Karaikudi -Pugalur 400 kV S/C
- Pugalur - Arasur 400 kV D/C
- Tuticorin-Tirunelveli 400 kV D/C
- 220kV inter-connection with existing Tuticorin TPS

Option-III:

- Tuticorin JV-TPS - Madurai 400 kV D/C
- Karaikudi -Pugalur 400 kV S/C
- Pugalur - Arasur 400 kV D/C
- 2 x 315 MVA, 400/230 kV auto transformers at Tuticorin JV-TPS
- 220 kV inter-connection with the existing Tuticorin TPS

Option-IV:

- Tuticorin JV-TPS - Madurai 400 kV D/C
- 2 x 315 MVA, 400/230 kV auto transformers at Tuticorin JV-TPS
- 220 kV inter-connection with existing Tuticorin TPS

DD (SP&PA) stated that transmission system suggested by TNEB (Option-I) would have over-provision and the 400kV circuits were very lightly loaded . Option-II and III were indicated to be sub-optimal and Option-IV emerged as economical, meeting technical requirement. CE (SP&PA) added that in the TNEB proposed alternative, 400kV D/C lines to Karaikudi, a single circuit Quad conductor line to Madurai and Pugalur-Arasur 400kV D/C line, were not adequately loaded as generation from the station was partly dispersed in the 220kV network of TNEB through 400/220kV transformer facility to be created at the station and the rest would flow through three 400kV circuits. He said that option-IV comprising a 400kV D/C to Madurai and 220 kV inter connection arrangement with 400/220kV transformation facility at Tuticorin would be able to meet contingency and offer better option.

TNEB representative stated that 2000MW wind power generation would also be available in and around Tuticorin area, which would meet load demands in that area. In this situation, power transfer from Tuticorin JV-TPS project to 220kV level would not take place and adequate number of 400kV outlets from the power station would need to be planned for power evacuation. Member (PS) asked TNEB to furnish the details of 2000MW wind power generation and associated transmission network for this along with sub-stationwise loads to be catered from these generation sources. TNEB agreed to furnish these details. It was decided that further studies would be carried out in CEA to evolve the transmission requirement after the input from TNEB was received.

5. Evacuation requirement for North Chennai TPS (2x500 MW) joint venture of TNEB - NTPC

Director, NTPC stated that about 75% generation from the joint venture project would be consumed by TN and the remaining 25% would be disbursed outside the State of Tamil Nadu and therefore, it may deem to be mega project.

For evacuation of power from North Chennai joint venture project, DD(SP&PA) stated that three alternatives had been considered (viz. Option-I, II & III as given in the agenda) and the transmission requirement was evolved corresponding to 2011-12 scenario. In this, Ennore gas based project (1000MW) had also been considered. He mentioned that TNEB proposal (Option-I) for 400kV D/C line to Alamathy, 400kV single circuit quad line to Arni and 400kV D/C line to Pugalur with creation of a 400/220kV S/S at Arni could not be justified in view of lines being lightly loaded. Three 400kV outlets from the station were prima-facie not required. Option-II envisaging 400kV D/C Quad line to Alamathy and 220kV inter-connection with the existing North Madras TPS would cater to the evacuation requirement. Option-III consisting of 400kV D/C Quad line to Arni with LILO of one ckt at Alamathy and Arni-Pugalur 400kV D/C line was also not getting adequately loaded. CE (SP&PA) opined that Option-II was suitable from system considerations and investment angle. He then sought the opinion of the participants.

POWERGRID representative stated that they were not aware of the status of the Ennore gas based project and share allocation from the same. Director, NTPC informed that North Chennai JV-TPS (1000MW) could be in lieu of Ennore gas based station. M(PS) clarified that Chennai joint venture TPS would be coal based whereas power station at Ennore would be gas based station.

TNEB representative stated that the 400kV power flow distribution from Pugalur S/S, particularly in 400kV Arasur-Pugalur line, would be different in absence of Ennore gas based project. They suggested that transmission system for North Madras JV-TPS should also be examined without Ennore. After discussion, it was agreed that further studies would be carried out to evolve the evacuation requirement without considering Ennore gas based project.

6. Upgradation of Kaiga-Davangere D/C line for 400 KV Operation by NPCIL/KPTCL and over-voltages in the grid.

On query from M(PS), CE (NPCIL) informed that 2nd ckt. of Kaiga-Davangere D/C line would be commissioned by 1st October 2005. NPCIL representative mentioned that 400kV operation of one of the lines in combination with the other line being operated at 220kV was creating operational problems like frequent tripping of the circuit, insulation failure etc. He suggested to install reactor(s) at the Davangere side of the line to avoid present operational problems due to over-voltgaes. He also recalled the discussions of the last meeting wherein it was decided to carry out light load studies to work out the reactive requirements. CE (SP&PA) stated that system studies had to be done to determine the overall reactor requirements at various places of the Southern grid and necessary reactors identified on this basis could be covered under a system strengthening scheme.

It was agreed that CEA and POWERGRID would carry out this exercise and come up with the proposal in the next standing committee meeting. Member (PS) wanted to know the programme/progress of the 400kV Kaiga-Narendra D/C line. POWERGRID stated that NPCIL would have to provide the necessary 400kV bays at their Kaiga station. CE, NPCIL confirmed the same. M(PS) stated that in view of high voltages being experienced in the area, the possibility of charging this line at 220kV initially should also be explored. CE, NPCIL stated that as the programme was to charge this line at 400kV from beginning, they had no

provision for 220kV bays and that 220kV bays vacated by 400kV operation of Kaiga-Davanagere line had been utilized to supply station transformer and the other bay (second) would also be used for this purpose. For operation of the second circuit of Kaiga-Davanagere D/C line at 400 KV, the target date was scheduled to be 1st October, 2005. In view of operational problems being experienced in SR grid for simultaneously operating both the circuits of Kaiga – Davanagere (400kV D/C operation and/or multi-voltage operation), it was decided that one circuit of Kaiga-Davanagere D/C line would be alternatively operated by switching off the other circuit till the Kaiga Phase-II units are commissioned.

7. **Status of Commissioning of Nellore 400/220kV sub-station**

As regards commissioning of Nellore 400/220kV S/S, ED (PS), APTRANSCO informed that all the equipments including transformers were placed at site and the S/S would be commissioned by 31st October 2005.

8. **TNEB's requirement of 3 nos. of 220 KV bays at Tirunelveli 400/230kV S/S of POWERGRID**

TNEB'request for providing 3 numbers of 220kV bays at Tirunelveli was discussed. It was decided that additional bay would be provided to them not by bunching Edamon bays but by additional provision at the cost of TNEB and TNEB agreed to this.

9. **Taking over of 400kV Navyeli TPS-II - Nayveli TS II Expn. D/C line (about 1.5km) of POWERGRID by NLC**

- **Provision of one additional 220kV bay at 400kV Mysore and Hassan Sub-stations of POWERGRID for KPTCL**

NLC representative stated that they propose to take over 400kV Neyveli TPS-II - Neyveli TS-II Expn. D/C line (about 1.5km) being implemented as part of Neyveli TS-II Expn. for operational convenience as this line would fall totally within the Neyveli power stations complex benefits of the power stations in the Neyveli complex. The maintenance, ownership and operation of the line would be the responsibility of NLC. M(PS) asked the view of POWERGRID. POWERGRID stated that they would not have any objection in this regard.

The proposal of NLC to take over the 400kV Neyveli TPS-II - Neyveli TS-II Expn. D/C line with full responsibility to construct, own, operate, maintain and recover the cost as transmission tariff or as part of their tariff for Neyveli TS-II Expn. was fount to be generally agreeable. However, Member (PS) stated that NLC would also have to look into the issue to get the tariff approved and also whether they need transmission license for this for which they may have to approach the regulator. It was decided that NLC would look into this issue and revert back.

10. **KPTCL's request for additional 220kV bays at Mysore and Hassan**

KPTCL representative requested for provision of one additional 220kV line bay each at Mysore 400/220kV and Hassan 400/220kV sub-station of POWERGRID at the cost of KPTCL. This was agreed.

11. **Back-up transmission System for Talcher Stage-II (4x500MW) power evacuation**

CE (SP&PA) explained the background of Talcher II back up transmission system requirement. The proposal evolved based on system studies was to construct 400kV D/C line from Bhubaneswar (Mendhashal) to Berhampur in Eastern region and thereon to Gazuwaka with 40% series compensation on Berhampur-Gazuwaka line. The system was evolved keeping in view that SR constituents could have long term open access to ER system from Talcher to Gazuwaka for a capacity of 500 MW of Talcher II power. With this, SR could schedule its Talcher power partly via Talcher-Kolar HVDC line and partly via Gazuwaka so

that in outage condition on any of the route, power flow could be enhanced on the other route. This arrangement would utilize half of the Gazuwaka capacity of 2x500MW for Talcher back-up and the balance 500MW would be available for trade related import. If the trade related capacity will require to be increased, third 500MW HVDC back to back module at Gazuwaka could be provided.

POWERGRID representative stated that the capacity of the proposed 400kV line from Bhubaneswar(Mendhashal) to Gazuwaka via Berhampur together with HVDC back-to back at Gazuwaka would be used to transfer surplus power from ER to SR via Gazuwaka 2x500 MW back to back link and the back up transmission requirement for Talcher-II could be provided through additional transmission capacity in the evacuation system for Ib-valley power station (2000 MW) and GMR power project (1000 MW) in Orissa which were expected to come and the beneficiaries from which were to be the States of Southern Region. They were of the view that a composite transmission system clubbing evacuation from these two projects and Talcher-II back-up requirement could be evolved. Director NTPC emphasized that the Talcher II back up transmission system should be provided as an urgent requirement and not be mixed up with commissioning of future generation project which were yet to be firmed-up. He further added that the Talcher-II back-up system should be given a priority to meet technical requirements rather than trading of power through it. APTRANSCO representative mentioned that if third 500MW back-to-back module was added at Gazuwaka, 1500MW power injection at Gazuwaka would cause overloading in their downstream 220kV lines emanating from Gazuwaka area and this aspect would require further examination. Member (PS) stated that regional 400kV system in SR from Gazuwaka was well capable to meet the transmission requirements for 1500MW imported at Gazuwaka and for their own power to be transmitted from Kakinada area, APTRANSCO would need to strengthen their own transmission system. The participants expressed that some more time would be needed to examine the proposal and it was decided that they would communicate their views within a fortnight's time.

12. CONCLUSION

Summarizing the deliberations, M(PS) CEA stated that

(i) The summary record of discussions of the 20th SCM as circulated by CEA vide letter No. 51/4/SP&PA-2001/536-46 dated 20-10-2004 was confirmed.

(ii) KPFBR transmission system as indicated under item No.3 was agreed.

(iii) Evacuation requirements for Tuticorin JV-TPS and North Madras JV-TPS would be evolved with and without Ennore-CCP (1000MW) project. TNEB would furnish the details of 2000 MW wind power generation projects likely to come-up in and around Tuticorin area and corresponding 220kV loads to be catered from this generation source, based on which revised studies would be taken up in CEA to evolve transmission requirement for the two joint venture projects.

(iv) CEA and POWERGRID would carry out studies to determine the requirement of reactors in the 400kV system and a proposal based on same would be worked out to be taken up as system strengthening scheme which would be discussed/finalized in the next meeting of the Standing Committee.

(v) For operation of the second circuit of Kaiga-Davanagere D/C line at 400 KV, the target date was scheduled to be 1st October, 2005. In view of operational problems being experienced in SR grid for simultaneously operating both the circuits of Kaiga – Davanagere (400kV D/C operation and/or multi-voltage operation), it was decided that one circuit of Kaiga-Davanagere D/C line would be alternatively operated by switching off the other circuit till the Kaiga Phase-II units are commissioned.

(vi) POWERGRID would provide one additional 220kV line bay at Tirunelveli 400/230kV S/S at the cost of TNEB and one additional 220kV line bay each at Mysore 400/220kV and Hassan 400/220kV sub-stations at the cost of KPTCL.TNEB and KPTCL would send

their written consent for bearing full cost/transmission charges for these additional 220kV line bays to enable POWERGRID to take up these works.

(vii) NLC would revert back after looking into the issue of tariff recovery and need for transmission license in respect of their proposal to take over the responsibility for the Neyveli TS-II- Neyveli TS-II Expn 400kV D/C 1.5km line.

(viii) The members would communicate views of their organization in regard to the proposal for back-up transmission system for Talcher-II via strengthening in ER grid by Bhubaneswar(Mendhashal)-Berhampur-Gazuwaka 400kV D/C line together with seeking 500MW long term transmission access in ER grid from Talcher to Gazuwaka.

The meeting ended with a vote of thanks to the Chair.

List of Participants in the 21st Standing Committee Meeting on Power System Planning in Southern Region held on 22nd September, 2005 at SREB, Bangalore.

Organisation Name	Designation
CEA	
1. S/Sh. V. Ramakrishna	Member (PS)
2. A.K. Asthana	Chief Engineer (SP&PA)
3. B.M. Sethi	Director (SP&PA)
4. R. Saha	Dy. Director (SP&PA)
SREB	
5. S/Sh. K. Srinivasa Rao	Member Secretary
6. P. Patel	SE
7. M.R. Singh	SE
8. T.N. Padbhanabhan	EE
9. MVS Rajeshwar Rao	EE
10. T. Sankaran	AEE
11. A.K. Yadav	AEE
Bhavini/NPCIL/IGCAR	
12. S/Sh. S. Mittal	ED (Operation)
13. NSM Rao	Chief Engineer (EDTAPS)
14. M.K. Kannan	Chief Engineer (Tr),NPCIL
POWERGRID	
15. S/Sh. R.N. Nayak	ED (Engg.)
16. V.K. Aggarwal	AGM,SRLDC
17. Y.K. Sehgal	DGM (Engg.)
18. Gururaja Rao	DGM (Engg) SR-II
19. V.K. Verma	DGM, SRLDC
20. P.R. Raghuram	DGM,SRLDC
21. Mukesh Khanna	CDE (Engg.)
22. A Naga Raju	Chief Manager (comm.),SRTS-II
23. T Srinivas	Manager,SRLDC
24. S.P. Kumar	Manager,SRLDC
NTPC	
25. S/Sh. T Sankaralingam	Director (Projects)
26. Pramod Kumar	DGM
27. N. Balasundaram	Sr. Manager
28. S. Murugan	STA to D(PM)
PTC	
29. Sh. S.K. Dube	Director (O)

NLC

30. S/Sh. N.S. Rajagopalan	CGM/PSE/NLC
31. S. Muthu	DGM/PSE/NLC

KPTCL

32. S/Sh. Chandre Gowda	Director (Transmission)
33. Divakara Rao K	Chief Engineer (O), LDC
34. S. Viswanathan	Chief Engineer (E), P&C
35. K. Balaraman	AEE Plg. & System studies

KSEB

36. P.N. Mohanan	Member (Trans)

APTRANSCO

37. S/Sh. V. Rama Narasimha Rao	ED(PS)
38. P. S. Rama Rao	CE/GO

TNEB

39. Smt. B. Shantha	CE
40. S/Sh. V. Naganathan	CE(O)
41. S. Balaguru	EE(System Studies)
42. S. Sownyanaraynan	Consultant

Pondicherry

43. S/Sh. D. Gunasekhran	Executive Engineer
44. D.Stephen Joseph	Asstt. Engineer