

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

No. 51/4/SP&PA-2009/ 246-255

Date: March 17, 2009

To

1.The Member Secretary, Southern Regional Power Committee, 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 : 95124-2571932
3.The Director (Transmission), Transmission Corp. of Andhra Pradesh Ltd., Vidyut Soudha, Hyderabad – 500 082. FAX : 040-66665137	4.The Director (Transmission), Karnataka State 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 : 0471-2444738	6. Member (Distribution), Tamil Nadu electricity Board (TNEB), 6 th Floor, Eastern Wing, 800 Anna Salai, Chennai - 600002. FAX : 044-28516362
7.The Director (Power), Corporate Office, Block – I, Neyveli Lignite Corp. Ltd., Neyveli , Tamil Nadu – 607 801. FAX : 04142-252650	8.The Superintending Engineer –I, First Floor, Electricity Department, Gingy Salai, Puducherry – 605 001. FAX : 0413-2334277/2331556
9. Director (Projects), National Thermal Power Corp. Ltd. (NTPC), NTPC Bhawan, Core-7, Scope Complex, Lodhi Road, New Delhi-110003. FAX-011-24360912	10. Director (Operations), NPCIL, 12 th Floor, Vikram Sarabhai Bhawan, Anushakti Nagar, Mumbai – 400 094. FAX : 022- 25991258

Sub: 27th meeting of the Standing Committee on Power System Planning of Southern Region
- Minutes of the meeting.

Sir,

Please find enclosed the Minutes of the **27th meeting** of the Standing Committee on Power System Planning of Southern Region held on 03rd March 2009 (Tuesday) at SRPC office, Bangalore. Your comments and observations, if any, may be sent to us at the earliest.

This issues with the approval of Member (PS), CEA.

Yours faithfully,

Encl: Minutes

Sd/-
(Pardeep Jindal)
Deputy Director (SP&PA)
(Telephone No. 011 26732325)

**Minutes of the 27th Meeting of the
Standing Committee on Power System Planning for Southern Region
Held on 3rd March 2009 at SRPC, Bangalore**

1. List of participants enclosed at Annex – I.

2. In his introductory remarks Member (PS), CEA welcomed the Southern Region participants and underlined the importance of avoiding reopening of the issues discussed and finalized in the previous meeting so that it is possible for the CTU to go ahead in implementation of the agreed proposals.

3. Minutes of the Meeting of Standing Committee.

Member (PS), CEA referred to TNEB comments on the MoM of the 26th Standing Committee meeting proposing that 400kV link between Vallur TPS and North Chennai TPS may be owned either by NTCEL or TNEB so that maintenance could be hitch-free. Member (PS) observed that TNEB had not questioned the necessity of the 400kV link between Vallur TPS and North Chennai TPS of TNEB nor the sharing methodology proposed during the meeting and therefore TNEB's observation for amendment to the 26th Standing Committee MoM dated 13.06.2008 did not arise. It was, therefore, agreed to confirm the minutes of the meeting as circulated and TNEB's proposals would be discussed as part of the present meeting.

4. Status of implementation of transmission proposals

Powergrid circulated status of the new schemes for SR indicating the estimated target dates of commissioning and reasons for delay if any. A copy of the Statement circulated by PGCIL is at Annex-II. Member (PS) requested Powergrid to circulate/publish the status ahead of the Standing Committee meeting so that constituents have an opportunity to study and comment. It was observed that there has been delay in implementation in some of the schemes with respect to approval by the Standing Committee. Member (PS) requested that once a scheme is approved by the Standing Committee, the implementation should be taken up quickly.

5. Transmission System for evacuation of power from Vallur TPS (3x500 MW)

- (i) CEA explained that TNEB had informed vide letter dated 16.09.08 that only 4 bays were available at Sunguvarchatram substation of TNEB (2 for Alamathi - Sunguvarchatram and 2 for LILO of Sriperumbudur - Melakottaiyur 400kV line). As such it was not possible to provide extension bays to connect 400kV D/C line from Vallur TPS
- (ii) POWERGRID vide letter dated 17.09.08 had informed that:
 - They had already taken up the LILO of both circuits of Sriperumbudur-Alamathi 400kV D/C line as approved in 24th meeting of Standing Committee and 5th meeting of SRPC. And the additional transmission elements to meet requirement of 3rd unit at Vallur TPS would be taken up as a supplementary scheme.
 - Provision of additional two 400kV bays at Sriperumbudur under Vallur TPS, was not feasible on account of physical limitations at Sriperumbudur.
- (iii) CEA, Powergrid and TNEB carried out joint studies in CEA during 6th & 7th January 2009, the results of which were explained.

(iv) **After discussion the transmission system for Vallur TPS was (3x500 MW) was revised as follows:**

- (a) Vallur TPS - Alamathi 400kV D/C line
- (b) Vallur TPS - Melakottaiyur 400kV D/C line
- (c) Tiruvalam - Chittoor 400kV D/C quad line

The above three elements would be built by the CTU as regional lines.

- (d) Regarding new 400/220kV S/S at Tiruvalam the final decision could not be taken. TNEB stated that they had extra land at their 220kV Tiruvalam S/S for building their own 400kV S/S. CEA observed that CEA was examining the feasibility of establishment of 765kV S/S at Tiruvalam as part of ATS for TNUMPP and the proposed 400/220 kV S/S could be implemented as part of 765/400/220kV S/S in order to economise the overall cost.

TNEB would study and revert.

(v) **The following 400kV lines from Tiruvalam would be built by TNEB for augmentation of State's system :**

- a) Tiruvalam - Singarapet 400kV Quad D/C line
- b) Tiruvalam - Alamathi 400kV D/C line

(vi) With the above arrangement, the Nellore – Sriperumbudur 400kV D/C connectivity would be restored and the LILO sections at Alamathy of the Nellore – Sriperumbudur lines would be suitably utilized for new lines. Also the Kolar – Sriperumbudur 400kV S/c connectivity would be restored and some part of the LILO section at Melakottaiyur of the Kolar-Sriperumbudur line would be utilized for the new Vallur TPS - Melakottaiyur 400kV D/C line. POWERGRID informed that with above arrangement, some part of the LILO section at Melakottaiyur might remain unutilized and the same was noted by the Committee.

6. **ATS for North Chennai TPS-II**

(a) Due to the reason explained above, the ATS for North Chennai TPS II (2x600 MW) of TNEB was revised as follows:

- a) NCTPS II – Alamathi 400kV D/C line
- b) NCTPS II – SVChatram 400kV D/C line

The above lines shall be build by TNEB.

(b) Inter-connecting line between Vallur JV TPS and North Chennai TPS-II Projects

It was decided that the Vallur JVTPS – North Chennai – II TPS 400kV D/C line would be built and owned by TNEB. As this line is also to be used for evacuation and reliability of Vallur JV TPS power, 50% of the transmission charges for this line would be pooled in the SR pool and paid to TNEB. TNEB would be required to approach CERC for determination of tariff for this purpose.

7. TNEB Proposals:

7.1 Construction of 400 kV D/C line from Pugalur to Sholinganallur (Ottiampakkam).

The line was required for evacuation of wind generation from Southern Tamil Nadu. TNEB clarified that they had taken up the works but it would now be terminated at Ottiampakkam instead of Sholinganallur.

7.2 (i) TNEB had proposed following transmission system to be executed by them:

- Establishment of 400/230kV S/S at Singarapet with 2x315 MVA ICT.
- Hosur – Singarapet 400kV DC line with twin moose conductor.
- LILO of both the circuits of Pugalur – Ottiampakkam (Sholinganallur) 400kV DC Quad line at Singarapet 400kV S/S with Quad Conductor.

(ii) The above system was earlier proposed by TNEB as regional strengthening scheme and was taken up for discussion in the 25th meeting of SCPSPSR (held on 28.3.2008) alongwith the transmission system for generation projects in Tamil Nadu. During the discussions it was decided that the transmission proposals of TNEB would be revisited and for this they would coordinate with CEA and POWERGRID in carrying out further studies. The studies were carried out in CEA jointly by TNEB, CEA and POWERGRID in June, 2008 and results were put up as part of the agenda for 26th meeting. However, no particular discussion was held for the above proposals, as TNEB had not finalized whether the scheme would be under regional or under state sector.

(iii) During the discussions in the 25th meeting, POWERGRID stated that with commissioning of new generation projects TNEB would be surplus in power and would be utilizing ISTS to transfer the surplus to other constituents within and across the Southern region, therefore, TNEB should seek long term open access for utilization of ISTS for new generation projects planned for development under State sector.

(iv) CEA advised TNEB, that before agreeing to Hosur-Singarapet 400 kV DC line, they should estimate the quantity of surplus power (in consultation with the wind generators) to be injected into the SR grid. Accordingly, they should approach POWERGRID for long-term Open access from Tamil Nadu to SR so that ISTS could be planned for the same. TNEB agreed for the same and the proposal of 400 kV Hosur-Singarapet D/C line would be considered in the next meeting.

7.3 As discussed earlier with TNEB the following evacuation scheme for Ennore TPS Annex (1x500 MW) at 230 kV level was confirmed:

- (i) LILO of existing ETPS-Manali 230 kV SC line at ETPS Annex.
- (ii) 230 kV, 2xDC lines from ETPS Annex to be erected on multi-circuit towers, two circuits to be terminated at Amabttur Industrial Estate, 230/110 kV S/S and other two circuits at Guindy 230 kV S/S.

7.4 **Inter-link between Tirunelveli (Powergrid) and Kanarapatty (TNEB) 400 kV S/S near Tirunelveli.**

Powergrid had informed during the 25th meeting that there was space only for one bay at Tirunelveli and, therefore, TNEB should plan either a single circuit or consider bunching of the two circuits of the D/C line. TNEB have now proposed that they would construct a 400 kV D/C (quad line) with only one circuit strung to optimize the RoW. They would

later decide to string the second circuit and terminate it at any other S/S of TNEB/PGCIL as required.

- 7.5 TNEB requested that one bay out of two number of 220 kV bays at Abhishekpatty substation of Powergrid which has been earmarked for connection with Edamon may be given to TNEB for connection with their Udyathur 220 kV S/S on temporary basis so as to provide the link with their load centre. TNEB were asked to furnish details of the proposed connection scheme to CEA and Powergrid for consideration.

8. Transmission proposals from KPTCL

8.1 Establishment of connectivity to Yelahanka 2x500 MVA, 400/220kV S/S (POWERGRID)

In the 26th meeting of Standing Committee the proposal for establishment of 400/220 kV S/S at Yelahanka was agreed to as a part of the regional transmission system. It is now being informed by the Powergrid that a portion of the land acquired by KPTCL and being transferred to Powergrid has some encroachment. The modalities of removing encroachment would take considerable time and keeping in view the urgent requirement of the S/S, it is proposed by Powergrid that out of the available un-encroached portion it was possible to implement the 400kV portion as Gas Insulated Substation (GIS) and the 220kV portion as AIS. It was proposed to take up the approval of SRPC in the forthcoming meeting to adopt 400kV GIS.

Regarding the inter-connection of Yelahanka with the grid it was agreed to loop in loop out (LILO) the Nelamangala-Hoody line 400kV line and the Somanahalli-Hoody 400kV line at Yelahanka S/S. Further, as a part of evacuation from BTSP, KPTCL would construct a Hiriya - Yelahanka 400kV D/C line. It was also proposed to provide space at the Substation for accommodating future inter-connection, if required.

Insofar as the inter-connection at 220 kV Yelahanka is concerned KPTCL had tentatively proposed inter-connection with their S/S at Hebbal, Bangalore International Airport, DB Pura and Nelamangala. Accordingly, adequate bays should be provided at 220kV by Powergrid for KPTCL. Out of the above 220kV bay requirements, six bays would be as part of the regional system and the balance would be implemented as deposit work for KPTCL.

8.2 Proposal of KPTCL for establishment of 400 kV S/S at Electronic City in Bangalore.

KPTCL have proposed establishment of 400/220kV S/S near Yerandahally near Electronic City by LILO of Somanahalli – Kolar S/C line. In order to provide further availability of power it is proposed that the feasibility of LILO of Kolar-Hosur D/C line at Yerandahally may be examined. Alternatively, a separate 400 kV D/C line from Hosur S/S may be constructed. KPTCL agreed to examine the feasibility. KPTCL also agreed to examine and confirm inter-connections required at 220 kV to avail power at this substation. Alternatively it is also considered if the existing 220 kV line be dismantled and separate 400kV line constructed wherever there is right of way constraint for construction of 400 kV line between Electronic City and Kolar.

8.3 The proposal of KPTCL for evacuation of power from Yeramas/Edlapur (2x800 + 1x800 MW) and augmentation of power injection to Bangalore main.

The agenda items were discussed and KPTCL felt that more studies are required to be carried out for firming up the proposal. Accordingly, it was decided that joint studies

would be conducted by CEA, Powergrid and KPTCL at mutual convenient date in Delhi and thereafter the proposal would be taken up in the next Standing Committee meeting.

8.4. ATS for Krishnapattnam UMPP

KPTCL have now proposed that 765 kV, 'Nellore/Kurnool-Raichur-Sholapur Line' (part of ATS for Krishnapattnam UMPP) be re-routed as 'Nellore/Gooty-Hiriyur-Basvana Bagewadi-Sholapur.' APTRANSCO and TNEB observed that it would increase line length and increase the capital expenditure. CEA expressed the view that as per their joint study with KPTCL it was found that KPTCL proposal was not optimal since it would result in higher capital expenditure and additional transmission losses. CEA also did not recommend revisiting of already agreed proposals.

8.5 Evacuation scheme for Tadri UMPP (4000 MW)

Since the timeframe for implementation of Tadri UMPP was not known, the proposal of KPTCL was deferred.

9.0 Proposal of APTRANSCO

9.1 Evacuation of scheme for Kothagudam TPS Extn (1x500 MW) through 400kV Kothagudam - Khammam D/C line

CEA explained that Kothagudam - Khammam 220kV D/C lines were getting overloaded when operating in parallel with the proposed 400kV Kothagudam - Khammam lines. Either 220kV bus at Kothagudam TPS would have to be split or phase shifting transformer would have to be installed at Kothagudam to force more power flow on the 400kV lines. APTRANSCO agreed to take up with APGENCO to provide phase shifting transformer as suggested by CEA since it would give greater flexibility in 220 kV network management and transmission losses would also be less. Beyond Khammam, the power would flow over Khammam - Hyderabad 400kV D/C line of APTRANSCO

9.2 Evacuation system for Bhoopalapally St I (1x500 MW) and St II (1x600 MW)

APTRANSCO has proposed the following lines for evacuation of power from Bhoopalapally generating stations of APGENCO:

- i) Bhoopalapally – Warangal 400kV D/C line
- ii) Bhoopalapally-Gajwel 400kV D/C line.

For further utilization of power at Warangal APTRANSCO desired to have a 220 kV transmission lines with feeders to Durshed, Pulakurthy and Ramapa. Powergrid indicated that work for four bays have been ordered and for further requirement they have to take action afresh. The above scheme was agreed.

Considering configuration of the 220 kV network it is proposed that APTRANSCO may take up with APGENCO for providing 400/220kV S/S as part of Stage II and LILO of Warangal-Pulakurthy/Ramapa D/C line at Bhoopalapally. APTRANSCO agreed to interact with APGENCO and revert back.

10.0 400/220 kV transmission at Berhampur switching station

Member (PS), CEA explained that 400 kV Talcher - Gazuwaka D/C line is a back up transmission for SR to ensure that they get their share from Talcher TPS (in ER) under the contingency of outage of one pole/bipole \pm of 500 kV HVDC Talcher - Kolar line.

As Orissa had share in Talcher TPS and Orissa wants to draw its share at Berhampur and is ready to share transmission charges for Talcher - Gazuwaka 400 kV D/C line in proportion to their allocation. It was explained that originally 100% transmission charges for the back-up transmission system was to be borne by SR constituents. With the proposal of Orissa, the burden on SR constituents would be 90%. KPTCL, APTRANSCO and TNEB agreed to the proposal of Orissa but KSEB had reservations and wanted to study the matter further and revert back.

11. Proposals from NPCIL

11.1 Transmission system for evacuation of power from Kudankulam APP Stage-II (unit 3&4 of 2x1000 MW)

The issue was discussed and it was decided that NPCIL would confirm the schedule for this proposed generation project and also the proposed beneficiaries so that a suitable transmission system could be planned and timed accordingly.

- 11.2 NPCIL representative also raised the issue enhancing transmission capacity of the 400 kV lines emanating from Kaiga Atomic Power Project for evacuating power from their proposed Kaiga Stage-III (i.e. Unit 5 & 6 of 2x700 MW) project by providing series capacitor/FACT device in the existing 400 kV transmission lines. Member (PS) said that the transmission capacity of the lines could be enhanced by re-conductoring the existing lines with higher capacity Invar conductors. For re-conductoring, he suggested for use of Emergency Restoration Scheme (ERS) in construction in a phased manner during low hydro/dispatch periods at the Kaiga/ Kodashalli/ Kadra generation complex so as to minimize impact on the grid of the lines taken out for re-conductoring. He also stated that this issue was also discussed in length in the previous Committee meeting and NPCIL may take decision of having next stage at Kaiga considering the discussions in that meeting of Standing Committee.

List of Participants

Central Electricity Authority

1. Shri V. Ramakrishna, Member (PS)
2. Shri Ravinder, Chief Engineer (SP&PA)
3. Shri Pardeep Jindal, Deputy Director (SP&PA)

S.R.P.C.

1. Shri M.L. Batra, Member Secretary
2. Shri S.R. Bhat , SE
3. Shri Asit Singh, EE

POWERGRID

1. Shri S. Majumdar, Director (Projects)
2. Shri D. Chowdhury, ED (Engg.-II)
3. Pankaj Kumar, GM (Engg.)
4. Dilip Rozekar, CDE
5. Shri S.K. Datta, GM (I/C), SR
6. Shri H.B. Singh, GM (Comml)
7. Shri M.R.V. Holla, AGM (Engg)
8. Shri M. Krishnakumar, GM (Projects)
9. Shri A. Naga Raju, CM (Comml)

SRLDC, POWERGRID

1. Shri P. R. Raghuram, GM
2. Shri U.K. Verma, AGM

APTRANSCO

1. Shri M. Jayachandra, ED (PS)
2. Shri M. Balasubramanyam, DE/System Database

TNEB

1. Shri S. Akshaya Kumar, CE/Transmission
2. Shri K. Thangachamy, SE/System Studies
3. Shri S. Balaguru, EE/System Studies.

KSEB

1. Shri Srivarajan. K.N., CE (SO)

KPTCL

1. Shri Pratap Kumar, Director (Trans.)
2. Shri Suresh Babu, SE
3. Shri K. Paramesha, AEE

NTECL/NTPC

1. Shri N. Suriyanarayanan, CEO/NTECL
2. Shri A.K. Gupta, GM (PE-Elect/C&D)

NPCIL

1. Shri Sandeep Sarwate, DCE (T)

Status of Implementation of Transmission Schemes - Statement circulated by PGCIL

Sl. No.	Name of Scheme & Elements	Standing Committee Approval	FR Date	Investment approval by POWERGRID Board/CCEA	Target as of now	Comments/ Reasons of delay
1.	<p>Neyveli TS-II Expn Tr. System</p> <p>a) Neyveli TS-II Expansion – Neyveli TS-II 400 kV 2xS/c</p> <p>b) Neyveli TS-II- Pugalur 400 kV D/c</p> <p>c) Pugalur – Madurai 400 kV D/c</p> <p>d) Udumalpet – Arasur 400 kV D/c</p> <p>e) LILO of Ramagundam-Khammam 400 kV S/c at Warrangal</p> <p>f) LILO of Neyveli – Sriperumbudur 400 kV S/c at Pondicherry</p> <p>g) Establishment of new 400/220 kV substations at Pugalur, Arasur, Pondicherry and Warrangal with 2x315 MVA transformer each.</p>	16 th Meeting on 20.01.03	Aug, 03	CCEA Approval – January, 2005	Jun' 09	<ul style="list-style-type: none"> – Commn schedule as per CCEA is Dec'07. – However, NLC have indicated that generation project has been delayed to Feb'10 – In 8th SPRC meeting held on 15th Feb, 08, NLC have indicated a further delay of generation revised schedule – Feb' 10 / Jun' 10
2.	<p>Kaiga U-3&4 Tr. System</p> <p>a) Narendra – Davangere 400 kV D/c line</p> <p>b) Mysore – Kozhikode 400 kV D/c line</p> <p>c) LILO of existing Kolar – Sriperumbudur 400 kV S/c at new 400/220 kV substation at Melakottaiyur</p> <p>d) Establishment of new 400/220 kV substations at Kozhikode and Melakottaiyur with 2x315 MVA, 400/220 kV transformers</p> <p>e) Provision of 2nd 315 MVA, 400/220 kV transformer at Hiriyur 400/220 kV substations each.</p>	16 th Meeting on 20.01.03	Oct, 03	CCEA Approval – March, 2005	Commisioned Except Mysore-Kozhikode, matter of which is with court	<ul style="list-style-type: none"> – Mysore – Kozhikode is getting delayed due to ROW (50 Kms) & forest clearance problem in Karnataka portion

Sl. No.	Name of Scheme & Elements	Standing Committee Approval	FR Date	Investment approval by POWERGRID Board/CCEA	Target as of now	Comments/ Reasons of delay
3.	Kudankulam Tr. System a) Kudankulam – Tirunelveli 2x400 kV D/c lines with Quad conductors b) Tirunelveli – Udumalpet 400 kV D/c lines with Twin conductors. c) LILO of both circuits of Madurai – Trivandrum 400 kV D/c line at Tirunelveli d) Tirunelveli – Edamon 400 kV Multi-ckt line (2 ckts of quad & 2 ckts of twin) e) Edamon – Muvattupuzha 400 kV D/c line (with Quad conductors) constructed in new ROW corridor f) Muvattupuzha - North Trichur 400 kV D/c line with quad conductor g) Establishment of new 400/220 kV transformers with 2x315 MVA transformers at Tirunelveli and Muvattupuzha. h) Transformation augmentations with 1x315 MVA transformers at Udumalpet and Trivandrum 400/220 kV substations.	18 th Meeting on 05.03.04	June, 04	CCEA – May, 2005	Jun' 09	– Generation project is delayed to Dec'09. – System to be commn. Matching with generation project. – Tirunelveli 400/220 kV S/stsn and LILO of Madurai – Trivandrum commission ed
4.	System Strengthening – VII a) Establishment of 400/220 kV new substation with 2x315 MVA transformers at Karaikudi. b) LILO of one circuit of Madurai-Trichy 400 kV D/c line at Karaikudi c) Establishment of 400/220 kV new substation with 2x315 MVA transformers at Hassan. d) LILO of one circuit of existing Talguppa-Neelmangla 400 kV D/c line at Hassan	18 th Meeting on 05.03.04	July, 04	POWERGRID Board Approval - April, 05	July' 09	– Constructio n of line & substation are in progress ahead of schedule – POWERGR ID is making best efforts to commission the scheme by Mar' 09
5.	System Strengthening – VIII a) 11 nos. of 63 MVAR Reactors (7 bus reactors + 4 line reactors)	23 rd Meeting on 22.01.07	Mar, 07	POWERGRID Board pproval –Jan, 08	Mar' 10 - Nov' 10	– Award placed in July 08
6.	Kalpakkam PFBR Tr. System a) KPFBR - Kanchepuram 230kV D/c line b) KPFBR–Arni 230kVD/c line	20 th Meeting on 07.10.04	Mar, 08		Nov' 11	– Commissio ning schedule for D/c line

Sl. No.	Name of Scheme & Elements	Standing Committee Approval	FR Date	Investment approval by POWERGRID Board/CCEA	Target as of now	Comments/ Reasons of delay
	c) KPFBR – Sirucher 230 kV D/c line d) 2 nos of 230 kV bays each at Kancheepuram, Arni and Sirucher 230 kV substations of TNEB					for D/c line to Sirucher is Apr' 11 – Complete system by Nov' 11
7.	Transmission System associated with Tuticorin JV a) Tuticorin – Madurai 400kV D/c line (Quad conductor)	22 nd Meeting on 18.06.07	Jun, 07	POWERGRID Board Approval – Feb, 09	Feb' 12	– Award to be placed shortly
8.	Transmission system associated with Chennai NTPC-TNEB JV TPS a) LILO of Alamanthy – Sriperumbudur 400 kV D/c line at North Chennai TPS JV	24 th Meeting on 18.06.07	Nov, 07	POWERGRID Board Approval – May' 08	Sept 2009	- Activities in progress, to be commissioned 9 months ahead of Gen, Gen. likely by June'2010
9.	System Strengthening – IX a) Hassan - Mysore 400 kV D/c line	24 th Meeting on 18.06.07	Aug, 08	POWERGRID Board Approval – Feb, 09	Feb' 12	– Award to be placed shortly
10.	Simhadri-II Tr. System a) Simhadri – Gazuwaka 400 kV D/c with 95 degC conductor temperature	24 th Meeting on 18.06.07	Sept, 08		18 months from investment approval	– FR prepared – Investment to be taken shortly
11.	System Strengthening – X a) Establishment of new 400/220 kV substation at Bidadi with 7x167 MVA 400/220 kV transformers and 1x63 MVAR bus reactor b) LILO of one circuit of Neelamangla – Somnahalli 400 kV D/c line at Bidadi 400 kV substation	24 th Meeting on 18.06.07	Sept, 08		36 months from investment approval	– FR prepared – Investment to be taken shortly
12.	System Strengthening – XI a) Establishment of new 400/220 kV substation at Chulliar (Palakkad) with 2x315 MVA transformers and 1x63 MVAR bus reactor. b) LILO of both circuits of Udumalpet - Madakathara (North Trichur) 400kV D/C line at Chulliar 400 kV substation	25 th Meeting on 28.03.08	Oct, 08	POWERGRID Board Approval – Feb, 09	36 months from investment approval	– Award to be placed shortly