

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

No. 51/4/SP&PA-2011/ 1343-1353

Date: 21 Sept 2011

To

1.The Member Secretary, Southern Regional Power Committee, 29, Race Course Cross Road, <b>Bangalore 560 009.</b> <b>FAX : 080-22259343</b>	2.The Director (Projects), Power Grid Corp. of India Ltd. “Saudamini”, Plot No.2, Sector-29, <b>Gurgaon 122 001, Haryana.</b> <b>FAX : 95124-2571932</b>
3.The Director (Transmission), Transmission Corp. of Andhra Pradesh Ltd., Vidyut Soudha, <b>Hyderabad – 500 082.</b> <b>FAX : 040-66665137</b>	4.The Director (Transmission), Karnataka State Power Transmission Corp.Ltd., Cauvery Bhawan, <b>Bangalore 560 009.</b> <b>FAX : 080 -22228367</b>
5.The Member (Transmission), Kerala State Electricity Board, Vidyuthi Bhawanam, Pattom, P.B. No. 1028, <b>Thiruvananthapuram - 695 004.</b> <b>FAX : 0471-2444738</b>	6. Member (Distribution), Tamil Nadu electricity Board (TNEB), 6 <sup>th</sup> Floor, Eastern Wing, 800 Anna Salai, <b>Chennai - 600002.</b> <b>FAX : 044-28516362</b>
7.The Director (Power), Corporate Office, Block – I, Neyveli Lignite Corp. Ltd., <b>Neyveli , Tamil Nadu – 607 801.</b> <b>FAX : 04142-252650</b>	8.The Superintending Engineer –I, First Floor, Electricity Department, Gingy Salai, <b>Puducherry – 605 001.</b> <b>FAX : 0413-2334277/2331556</b>
9. Director (Projects), National Thermal Power Corp. Ltd. (NTPC), NTPC Bhawan, Core-7, Scope Complex, Lodhi Road, <b>New Delhi-110003.</b> <b>FAX-011-24360912</b>	10. Director (Operations), NPCIL, 12 <sup>th</sup> Floor, Vikram Sarabhai Bhawan, Anushakti Nagar, <b>Mumbai – 400 094.</b> <b>FAX : 022- 25991258</b>

**Sub: 33rd meeting** of the Standing Committee on Power System Planning of Southern Region  
- **Agenda for the meeting.**

Sir,

The **33<sup>rd</sup> meeting** of the Standing Committee on Power System Planning of Southern Region is scheduled to be held on **30-09-2011(Friday) at Hotel Fortune Select Manohar, Begumpet, Hyderabad.** The meeting would commence at **10:30 Hrs.**

This meeting is being convened to review the already planned transmission system due to delay in Krishnapatnam UPPP (4000MW), Srikakulam IPPs and the Talcher-II augmentation system, and urgent requirement of transformer augmentation in Southern Region to meet load demand in the region.

The agenda is also available at CEA's website ( [www.cea.nic.in](http://www.cea.nic.in) ).

Please make it convenient to attend the meeting.

Yours faithfully,

(Pardeep Jindal)

Director (SP&PA)

(Telephone: 011 26198092, Fax No. 011 26102045)

Copy to : Sh. SK Soonee, CEO, POSOCO,  
B-9, Qutub Institutional Area,  
Katwaria Sarai, New Delhi-110016

**Agenda Note for 33<sup>rd</sup> Meeting of  
Standing Committee on Power System Planning in Southern Region (SCPSPSR)**

Time: 10:30 AM                      Date: 30-9-2011

Venue: **Hotel Fortune Select Manohar, Old Airport Exit Road, Begumpet, Hyderabad**  
Tel : 40 – 39884422 <sup>1</sup>

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**1.0 Confirmation of the minutes of 32nd meeting of the Standing Committee**

- 1.1 Minutes of 32<sup>nd</sup> meeting of the Standing Committee on Power System Planning of Southern Region were issued vide CEA's letter number 51/4/SP&PA-2011/991-1001 dated 06-07-2011.
- 1.2 SRPC, vide their letter no. SRPC/SE-I/2011/5401-02 dated 19-07-2011 have given their observation regarding transmission system for evacuation of power from Simhadri-II TPS(2x500MW) of NTPC, quoting SRLDC 'The existing transmission system (ISTS) in Southern region is fully capable of handling the entire LTA of the region including the generation from Simhadri-II and only STOA will be curtailed if needed be'. Based on these observations, a corrigendum to the minutes of the 32nd meeting was issued vide CEA letter no. 51/4/SP&PA-2011/1085-1095 dated 08 August 2011 (copy enclosed at Annex-I).
- 1.3 The Minutes of the 32nd meeting along with corrigendum, as circulated, may be confirmed.

**2.0 Delinking of Associated Transmission System of Krishnapatnam UMPP from Krishnapatnam UMPP generation due to uncertainty.**

- 2.1 The issues and the agenda in this regard is given at Annex-II.

**3.0 Srikakulam Pooling Station –Vemagiri Pooling Station 765kV D/c line.**

- 3.1 The issues and the agenda in this regard is given at Annex-II.

**4.0 Transformer Augmentation in Southern Region.**

- 4.1 The issues and the agenda in this regard is given at **Annex-II**. In addition to 400kV substation given by POWERGRID, that require to be augmented SRLDC/POSOCO has also sent a list of 400kV S/s, that need augmentation. The POSOCO letter is given at Annex-III.

**5.0 Any other issue with the permission of chair.**

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<sup>1</sup> **Contact Person** regarding venue arrangement: Sh. A Naga Raju, DGM(SR-I), POWERGRID, Secunderabad. **Mobile** - 09491063371, **Tel(O)** - 040-27719861

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**Standing Committee on Power System Planning of Southern Region (SCPSP SR)**

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**Corrigendum to Minutes of the 32<sup>nd</sup> Meeting of the Standing Committee on Power System Planning of Southern Region held on June 08,2011 issued vide CEA letter no. 51/4/SP&PA-2011/1085-1095 dated 08 August 2011**

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Minutes of 32nd meeting of the Standing Committee on Power System Planning of Southern Region were issued vide our letter number 51/4/SP&PA-2011/991-1001 dated 06-07-2011. SRPC, vide their letter no. SRPC/SE-I/2011/5401-02 dated 19-07-2011 have given their observation regarding transmission system for evacuation of power from Simhadri-II TPS(2x500MW) of- NTPC.

Based on observations given by SRPC, following Para is added in the Minutes of 32nd meeting of the Standing Committee on Power System Planning of Southern Region:

**Para7.6 GM,SRLDC informed that the existing transmission system (ISTS) in Southern region is fully capable of handling the entire LTA of the region including the generation from Simhadri-II and only STOA will be curtailed if needed be.**

————— X ————— X ————— X ————— X

**पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड**  
(भारत सरकार का उद्यम)  
**POWER GRID CORPORATION OF INDIA LIMITED**  
(A Government of India Enterprise)



केन्द्रीय कार्यालय : "सौदामिनी" प्लॉट सं. 2, सैक्टर-29, गुडगाँव-122 001, हरियाणा  
फोन : 2571700 - 719, फैक्स : 2571760, 2571761 तार 'नेटग्रिड'  
Corporate Office : "Saudamini" Plot No. 2, Sector-29, Gurgaon-122 001. Haryana  
Tel. : 2571700 - 719, Fax : 2571760, 2571761 Gram : 'NATGRID'

संदर्भ संख्या/Ref. Number

C/ENG/SEF/S/00/PLG

08 September 2011

**Chief Engineer (SP & PA)**  
Central Electricity Authority  
Sewa Bhawan, RK Puram  
New Delhi- 110 066.

**Sub: New Strengthening Schemes in Southern region to be included in the forthcoming Standing Committee Meeting.**

Dear Sir,

This is further to our letter of even reference dated 22 July 2011 and 18 August 2011. Please find enclosed the consolidated new strengthening schemes (including above) in Southern Region to be included in the forthcoming Standing Committee Meeting. It is requested to kindly take up the schemes in the next Standing Committee Meeting for its concurrence.

Thanking you,

Yours faithfully,

  
(Y. K. Sehgal)  
ED (SEF & CE)

## **I. De-linking of Associated Transmission System of Krishnapatnam UMPP from Krishnapatnam UMPP generation due to its uncertainty.**

For the ease of implementation matching with the commissioning schedule of different units of Krishnapatnam UMPP the ATS has been taken up in three parts viz. Part-A, Part-B and Part-C (details given at **Annexure-I**). The Part-A & C mainly comprised of elements for immediate evacuation of power and part-B mainly comprised of those elements that are aimed at synchronous inter-connection of SR and WR.

Matching with the commissioning requirement of first unit of KUMPP, works for part-A have been initiated at site. The preliminary activities for Part-B and Part-C are completed and work at site to be initiated shortly.

Recently in the 12<sup>th</sup> Meeting of Joint Monitoring Committee of Krishnapatnam UMPP generation project held on 22<sup>nd</sup> June, 2011, it is understood that generation developer has stopped the works at his site and the project may get delayed.

1. As mentioned above, the Part-B primarily consists of elements that establish synchronous interconnections between SR & WR through 765kV Raichur – Sholapur S/c lines. Here it may be pertinent to mention that the other 765kV Raichur – Sholapur S/c line has already been awarded through tariff based competitive bidding. The synchronous interconnection between SR & WR is of urgent nature as the existing interregional capacity is inadequate to cater to the interregional transfer requirement, as were observed during this summer when there was a large variation in the prices of electricity in SR & NEW Grid. Further, synchronization of SR with NEW grid shall be a major milestone in Indian Power system development thereby establishing nationwide synchronous grid. The synchronization of SR with WR grids have been planned through Raichur – Sholapur 765 kV 2xS/c line.

In view of forgoing it is necessary that the Krishnapatnam UMPP Part-B transmission system comprising of following elements may be de-linked from the commissioning of Krishnapatnam UMPP generation project.

### **KUMPP Part-B**

- a) Establishment of new 765/400 kV substations at Raichur & Sholapur with 2x1500 MVA ICTs and 1x240 MVAR bus reactor each
- b) Establishment of new 765/400 kV GIS substation at Pune with 2x1500 MVA ICTs and 1x240 MVAR bus reactor
- c) LILO of existing Raichur – Gooty 400 kV Quad D/c line at Raichur (New) substation
- d) Raichur – Sholapur 765 kV S/c line with 240 MVAR switchable line reactors at each end
- e) Sholapur – Pune 765 kV S/c line with 240 MVAR switchable line reactors at each end
- f) LILO of Aurangabad – Pune 400 kV D/c at Pune (GIS)
- g) LILO of Parli – Pune 400 kV D/c at Pune (GIS).

The above proposal has been approved in the 17<sup>th</sup> Meeting of SRPC held on 12<sup>th</sup> August 2011 subject to approval by the Standing Committee.

2. The Part-C on the other hand comprised of Krishnapatnam UMPP – Kurnool 400kV D/c line, Kurnool – Raichur 765kV S/c line and establishment of Kurnool 765/400 kV substation. This part mainly caters to the immediate evacuation of power from Krishnapatnam UMPP generation project. Hence the same may be deferred for the time being till position of generation projects commissioning gets clear.

However, here it may be mentioned that Kurnool 765/400kV substation is necessary for interconnection of the Nellore Pooling Station – Kurnool 765 kV D/c line and Kurnool – Raichur 765 kV S/c line being taken up as part of Krishnapatnam LTA system (details given at **Annexure-I**). Therefore establishment of Kurnool 765/400kV substation along with its connectivity to grid viz. LILO of N'Sagar – Gooty 400 kV S/c line at Kurnool (New) substation & Kurnool (New) – Kurnool (APTRANSCO) 400 kV D/c quad line may also be delinked from Krishnapatnam UMPP generation project. Accordingly, the part of the KUMPP Part-C that is to be taken up now and part which may be deferred till the picture on KUMPP generation project becomes clear are as given below:

**KUMPP Part-C transmission system to be taken up delinking with generation**

- a) Establishment of new 765/400 kV substation at Kurnool with 2x1500 MVA ICTs and 1x240 MVAR bus reactor.
- b) LILO of N'Sagar – Gooty 400 kV S/c line at Kurnool (New) substation
- c) Kurnool (New) – Kurnool (APTRANSCO) 400 kV D/c quad line.

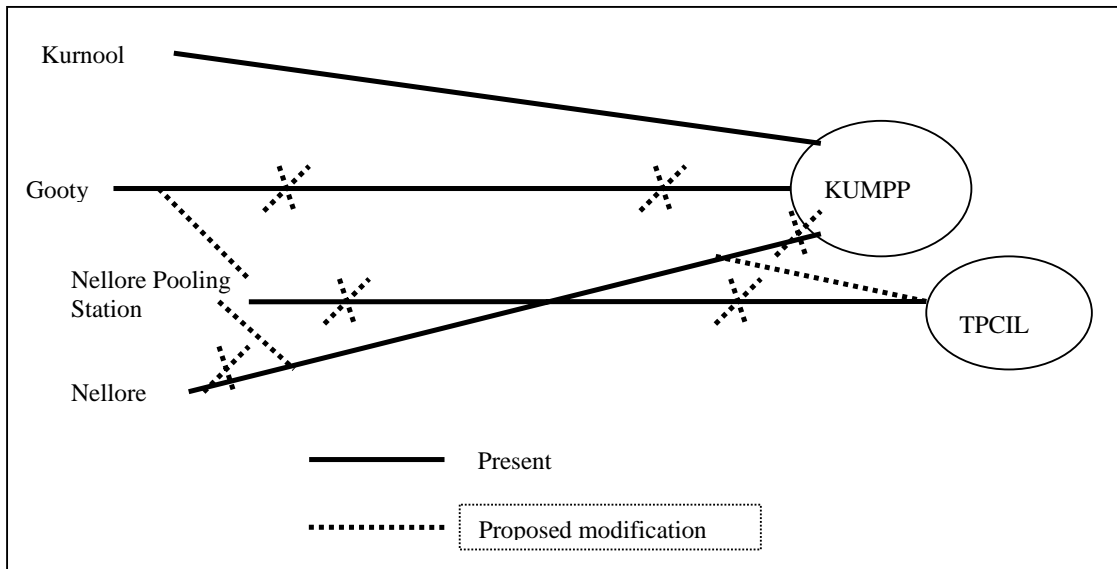
**KUMPP Part-C transmission system to be deferred**

- a) Krishnapatnam UMPP – Kurnool (New) 400 kV D/c Quad line with 63 MVAR line reactors at each end on both circuits
  - b) Kurnool (New) – Raichur 765 kV S/c line
3. Further as mentioned earlier works for the transmission system of Part A viz. Krishnapatnam – Nellore 400 kV quad D/c and Krishnapatnam – Gooty 400 kV D/c quad lines has already initiated at site.

In this regard, it may be mentioned that the transmission system evolution is generally made for grid requirement corresponding to a given time frame and likely load-generation scenario in that time frame. Further, the evolved systems for the sake of implementation are covered in one or more schemes. In the instant case also the transmission system in the KUMPP timeframe has been worked out not only for KUMPP project only but also for IPP projects in Krishnapatnam area, 1600 MW project of APGENCO, the transmission requirement of projects north of Krishnapatnam area and to address system strengthening requirement. Therefore, other requirement remaining same the KUMPP project has become uncertain.

Towards this, it may be mentioned that in the vicinity of KUMPP another power plant of 1320 MW capacity of Thermal Powertech Corporation India Limited (TPCIL) is coming up during the same time frame. Under the Connectivity Transmission System of Thermal Powertech Corporation India Limited (TPCIL) a 400 kV D/c quad line is proposed from their switchyard to Nellore Pooling Station. Therefore the under implementation Krishnapatnam UMPP – Nellore 400 kV D/c quad line is proposed to be made TPCIL – Nellore Pooling Station 400 kV D/c quad line.

Further the under construction, Krishnapatnam UMPP – Gooty 400 kV D/c quad line from Gooty is proposed to be terminated at Nellore Pooling Station instead of Krishnapatnam UMPP.



The load flow studies have been carried out with above configuration and is enclosed at **Exhibit-I**. The loading on Nellore Pooling station – Gooty 400 kV D/c quad line is about 698 MW and on Nellore Pooling station – Kurnool 765 kV D/c is about 744 MW which shows that the Nellore Pooling Station – Gooty helps in providing alternate path for incidental power flows. Also the power flow on the other lines is within their limits. The loading on Nellore – Kurnool 765 kV D/c line shall further increase when IPP generations in Krishnapatnam area materialise.

In view of the above, it is proposed that the under implementation KUMPP – Nellore 400 kV D/c quad line shall be made as TPCIL – Nellore 400 kV D/c quad line and this line shall be associated with Connectivity System of TPCIL. Similarly, under construction KUMPP – Gooty 400 kV D/c quad line shall be constructed as Nellore Pooling Station – Gooty 400 kV D/c quad line as regional strengthening scheme.

Members may please discuss and agree.

## II. Srikakulam Pooling station – Vemagiri Pooling Station 765 kV D/c line.

Presently the following inter-regional links exists/under implementation/planned between Southern and neighbouring regions

### Between South & West

Chandrapur HVDC back-to-back : 1000 MW (existing)

Raichur – Sholapur 765 kV 2xS/c : 4400 MW (under implementation)

Kolhapur – Narendra 765 kV D/c (initially charged at 400 kV) : 2400 MW (Planned)

### Between South & East

Gazuwaka HVDC back-to-back : 1000 MW (existing)

During the 32<sup>nd</sup> meeting of Standing Committee of Southern Region held on 8<sup>th</sup> June, 2011 the members while deliberating the new strengthening schemes in Southern region, a need was felt that Southern Region may have to import power considering the progress of the generation projects vis-à-vis the likely load growth projections in Southern Region. The import requirement shall further increase if the under construction Krishnapatnam UMPP generation (4000 MW) gets delayed as the work at this plant has been stopped.

Further under common system for ISGS generation in Srikakulam area, Srikakulam Pooling Station – Angul 765 kV D/c line and Angul – Jharsuguda – Dharamjaigarh 765 kV D/c lines are proposed. The power from IPPs in Srikakulam was pooled at Srikakulam Pooling Station and injected at Angul. There are no. of IPPs in Orissa, power of which shall be pooled at Angul substation. The Angul – Jharsuguda – Dharamjaigarh 765 kV D/c lines were proposed considering integration of corridors of Orissa IPPs and from Dharamjaigarh onwards under Chattisgarh corridor.

Under above uncertainty of Krishnapatnam UMPP, Southern Region may need import of huge quantum of power which may need augmentation of existing/under implementation/planned links. Therefore, the planned Angul – Jharsuguda – Dharamjaigarh 765 kV D/c line may be delinked from Srikakulam IPPs and Srikakulam Pooling Station - Vemagiri Pooling station 765 kV D/c line may be included under common system associated with Srikakulam Area IPPs due to change in load generation scenario.

Towards this, instead of Angul – Jharsuguda – Dharamjaigarh 765 kV D/c, Srikakulam Pooling station – Vemagiri Pooling Station 765kV D/c strengthening scheme is proposed which shall help in import of power to Southern region from Eastern Region especially from IPPs of Orissa.

The load flow study results for 2014-15 condition is enclosed at **Exhibit-I**. The loading on Srikakulam Pooling Station – Vemagiri 765 kV D/c line is 3347 MW. All the loadings on other lines are in their limits.

Members may please discuss and agree.

### **III. Transformer Augmentation in Southern Region.**

During the 32<sup>nd</sup> meeting of Standing Committee of Southern Region held on 8<sup>th</sup> June, 2011 the members while deliberating the new strengthening schemes in Southern region, need was felt for augmentation of transformation capacity in existing substations of Southern Region. From the Load flow study results for 2014-15 conditions (refer **Exhibit-I**), the loadings on the transformers in POWERGRID substations is as given below. Based on the power flows the augmentation of transformation capacity is proposed for implementation by POWERGRID at existing substations and details as given below:

POWERGRID Substation	Present Transformation Capacity (MVA)	Power Flow (MW)	Proposed Augmentation
Hyderabad	3x315	1328	1x315 MVA
Warangal	2x315	641	1x315 MVA
Khammam	2x315	872	1x315 MVA
Vijayawada	2x315	945	1x315 MVA
Gooty	2x315	853	1x315 MVA
Cuddapah	2x315	653	1x315 MVA
Malekuttiayur	2x315	536	1x315 MVA
Somanahalli	2x500	828	1x500 MVA
Mysore	2x315	626	1x315 MVA
Narendra	2x315	718	1x315 MVA
Pugalur	2x315	757	1x315 MVA
Trichy	2x315	580	1x315 MVA

Members may please discuss and agree.



**Transmission System Associated with Krishnapatnam UMPP**

**Part-A**

- a) Krishnapatnam UMPP – Nellore 400 kV D/c Quad line
- b) Krishnapatnam UMPP – Gooty 400 kV D/c Quad line, with 63 MVAR line reactors at each end on both circuits.

**Part-B**

- h) Establishment of new 765/400 kV substations at Raichur & Sholapur with 2x1500 MVA ICTs and 1x240 MVAR bus reactor each
- i) Establishment of new 765/400 kV GIS substation at Pune with 2x1500 MVA ICTs and 1x240 MVAR bus reactor
- j) LILO of existing Raichur – Gooty 400 kV Quad D/c line at Raichur (New) substation
- k) Raichur – Sholapur 765 kV S/c line with 240 MVAR switchable line reactors at each end
- l) Sholapur – Pune 765 kV S/c line with 240 MVAR switchable line reactors at each end
- m) LILO of Aurangabad – Pune 400 kV D/c at Pune (GIS)
- n) LILO of Parli – Pune 400 kV D/c at Pune (GIS).

**Part-C**

- c) Establishment of new 765/400 kV substations at Kurnool with 2x1500 MVA ICTs and 1x240 MVAR bus reactor
- d) Krishnapatnam UMPP – Kurnool (New) 400 kV D/c Quad line with 63 MVAR line reactors at each end on both circuits
- e) Kurnool (New) – Raichur 765 kV S/c line
- f) LILO of N'Sagar – Gooty 400 kV S/c line at Kurnool (New) substation
- g) Kurnool (New) – Kurnool (APTRANSCO) 400 kV D/c quad line.

**Common System Associated with ISGS projects in Krishnapatnam Area, Andhra Pradesh**

- a) Establishment of 765/400kV 2x1500MVA Pooling station at Nellore by LILO of Simhapuri – Nellore 400kV D/c line
  - b) Nellore Pooling station – Kurnool 765 kV D/c
  - c) Kurnool – Raichur 2nd 765 kV S/c line (first line under Krishnapatnam UMPP Part-C)
  - d) Associated 765kV & 400kV bays at Nellore Pooling station, Kurnool and Raichur substations.
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**Power System Operation Corporation Ltd.**

(A wholly owned subsidiary of Power Grid Corporation of India Ltd.)

**SOUTHERN REGIONAL LOAD DESPATCH CENTRE**

29, RACE COURSE CROSS ROAD, BANGALORE-560 009

No.GM/SRLDC/11/0801

3<sup>rd</sup> August .2011

From:

**General Manager,**  
SRLDC,POSOCO,  
Bangalore.

- To: 1. **Director (SP&PA),**  
Planning & Project Appraisal Division  
CEA, Sewa Bhavan, R.K.Puram  
New Delhi-110 066.
2. **Executive Director (SEF)**  
POWERGRID, Gurgaon-122 001.

Copy to: **Member Secretary, SRPC, Bangalore**  
**CEO, POSOCO, New Delhi.**

**Sub: Requirement of ICT capacity augmentation as discussed in 32<sup>nd</sup> standing Committee meeting-Reg.**

Sir,

During the 32<sup>nd</sup> meeting of the Standing Committee, planning for 2013-14 and 2016-17 cases were discussed. The power flows mentioned in the planning studies indicate that the ICTs provided in the following substations will not be sufficient for catering to the loads. Therefore, augmentation of the transformer capacity of 400/220 KV stations and further evacuation to the loads may have to be planned.

Sl. No.	Station Name	ICT rating	Present ICT capacity (MW)	Basecase Load	
				2013-14 (MW)	2016-17 (MW)
1	Gazuwaka	400/220kV	315x2	1202	1407
2	Nunna	400/220kV	315x2	596	682
3	Karnool	400/220kV	315x2	585	728
4	Gajwel	400/220kV	315	649	726
5	Hyderabad(PGCIL)	400/220kV	315x3	1037	1256
6	Hyderabad(AP)	400/220kV	315x3	982	1067
7	Malkaram	400/220kV	315x2	776	924
8	Malekuttaiyur	400/230kV	315x2	573	731
9	Myore	400/220kV	315x2	687	795
10	Somanahalli	400/220kV	500x2	852	978
11	Nelamangala	400/220kV	315x2	578	669

The issue may be considered for augmentation of the transformer capacity and associated transmission systems.

Yours faithfully,

**(P. R. RAGHURAM)**

# SYSTEM STUDIES : Southern Region 2014-15

