

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

No. 51/4/SP&PA-2012/ 344 - 355

Date: 09 April 2012

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: 34th meeting of the Standing Committee on Power System Planning of Southern Region - **Additional Agenda**

Sir,

The 34th meeting of the Standing Committee on Power System Planning of Southern Region is scheduled to be held on 16 April, 2012(Monday) **at Hotel Fortune Select Manohar, Begumpet, Hyderabad.** The meeting would commence **at 10:30 Hrs.** Agenda for the meeting was circulated on 02-04-2012. **Additional Agenda is enclosed.**

Complete Agenda is available at CEA’s website (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:

Shri S. K. Soonee, CEO, POSOCO,
B-9, Qutub Institutional Area,
Katwaria Sarai,
New Delhi-110016

GM, SRLDC,
29, Race Course Cross Road,
Bangalore 560 009
FAX – 080-22268725

Additional AGENDA NOTE

Additional Agenda Note for 34th Meeting of Standing Committee on Power System Planning in Southern Region (SCPSPSR)

Time: 10:30 AM Date: 16 April, 2012(Monday)
Venue: **Hotel Fortune Select Manohar, Begumpet, Hyderabad.**

A.0 220kV bays for 400/220kV transformer augmentation:

- A.1 During the 33rd Meeting of Standing Committee on Power System Planning in Southern Region, transformer augmentation at 12 nos. of substations of POWERGRID by 1x500MVA transformer was agreed. Of these 12 nos. substations, at 6 nos. of substations which are very old, the 220 kV yard is owned by State transmission utility viz. Somanahalli, Hyderabad (PG), Cuddapah, Khammam, Gooty and Vijayawada. As per the norms, 220kV bays are to be provided along with the augmentation of the transformer. However at some substations more number of 220kV bays have already been constructed leaving no space to accommodate any additional 220kV bay. The detailed status in this regard is enclosed at **Annexure-I**. The concern states are requested to inform the requirement of 220kV bays looking into the space availability, so that the same provision can be covered in the POWERGRID's DPR.
- A.2 Members may discuss.

B.0 Line reactor at Madakathara(North Trissur)

- B.1 The Udumalpet - Madakathara (North Trissur) 400kV D/C line (130 Km) was provided with fixed 50 MVAR line reactors on each circuit at Madakathara end. This line has been LILOed at Ellapally (Palakkad) 400/220kV substation under System Strengthening scheme. With the above LILO, the Ellapally (Palakkad) – Madakathara (North Trissur) 400kV D/c section has become about 85 Km. With the revised line length due to LILO, the line compensation shall be become about 100% which is not desirable. However these line reactors shall still be required to control voltages at the Madakathara (North Trissur) end.
- B.2 In view of the above it is proposed to convert 50 MVAR line reactors at Madakathara (North Trissur) into switchable reactor by providing necessary switching arrangement. Members may discuss.

C.0 Transmission system for Kudgi Phase-I TPS of NTPC (3x800 MW)

Following system was agreed during the 33rd meeting of SCPSPSR:

C.1 To be provided by NTPC:

- (i) Stepping up of power at the generation project to 400 kV
- (ii) Provision of Bus reactor of 2x125 MVAR at generation switchyard.
- (iii) Provision of 2x500 MVA, 400/220kV transformers at generation switchyard and 6 nos. 220 kV bays

C.2 To be implemented as ISTS (as evacuation system for Kudgi TPS Ph-I):

- (i) Kudgi TPS – Narendra (New) 400 kV 2xD/C quad lines
- (ii) Narendra (New) – Madhugiri 765 kV D/C line (initially charged at 400 kV)
- (iii) Madhugiri – Bangalore 400 kV D/c (quad) line. (The terminal point at Bangalore is yet to be decided, for which POWERGRID would take action and inform CEA/SCSPSR)

C.3 The issue of termination of Madhugere-Bangalore line was discussed in CEA with POWERGRID and KPTCL on 27-03-2012, and it was suggested that Bidadi substation may be taken as the terminal point in Bangalore area. It is proposed that scope under ISTS for Kudgi(2400 MW) may be modified accordingly (i.e. Madhugiri – Bidadi 400kV D/c Quad line under C.2(iii) above).

C.4 Based on the discussions in the 33rd meeting of SCSPSR, POWERGRID granted Long-term Access to NTPC Limited. Subsequently, NTPC vide its letter dated 19th March 2012 had forwarded a letter issued by Ministry of Power regarding allocation of power from Kudgi Project, as per which following shall be allocation of power:

State	% Allocation	Remarks
Karnataka	50% (1200 MW)	Home State
Unallocated	15% (360 MW)	
Andhra Pradesh	35% (840 MW)	To be allocated as per MOP letter 8/1/96/-OM dated 27-4-2000.
Kerala		
Tamil Nadu		
Pondicherry		

C.5 NTPC to give status of the generation project including availability of fuel. Members may discuss.

D.0 HVDC system strengthening in Southern Region:

D.1 A total of about 33500 MW of generation capacity from conventional resources is in the horizon to be added in Southern Region during 12th Plan period. A list of projects is given below:

XII Plan Projects in Southern Region (All figures in MW)

AP	Coal	Hydro	Gas
Pulichintala		120	
L. Jurala		240	
Rayalseema (U-6)	600		
Simhapuri	600		
Lanco Kondapally			740
GMR Rajamundry			768
GVK-Gautami			800
GVK-Jegrupadu			800
Meenakshi	900		
Hinduja	1040		
Kakatiya	600		
East Coast	1320		
Krishnapatnam(AP)	1600		
Thermal Powertech	1320		
Reliance -Vemagiri			2400
Total	7980	360	5508
Addition in AP		13848	

Karnataka	Coal	Hydro	Gas
Kudgi (NTPC)	2400		
Torangallu U-4	300		
Yeramaras	1600		
Uddupi (LANCO)	600		
Bellary	700		
Total	5600	0	0
Addition in Karnataka		5600	

Kerala	Coal	Hydro	Gas
Thottiar		40	
Pallivasal		60	
Total	0	100	0
Addition in Kerala		100	

TN	Coal	Hydro	Gas	Nuclear
Udangudi	800			
PEL- Naga	1050			
North Chennai	1200			
Mettur	1200			
ILFS- Naga.	1200			
Ind Barath-Tuti	1320			
Coastal Energen	1200			
Total	7970	0	0	0
Addition in TN		7970		
Central Sector	Coal	Hydro	Gas	Nuclear
Simhadri U- 4	500			
Kalpakkam				500
Neyveli St-III	500			
Tuticorin JV	1000			
Vallur (JV)	1500			
Kudankulam				2000
Total	3500	0	0	2500
Addition in Central Sector			6000	

Summary	Coal	Hydro	Gas	Nuclear
Andhra Pradesh	7980	360	5508	0
Tamilnadu	7970	0	0	0
Karnataka	5600	0	0	0
Kerala	0	100	0	0
Central Sector	3500	0	0	2500
Total	25050	460	5508	2500
Addition in Southern Region			33518	

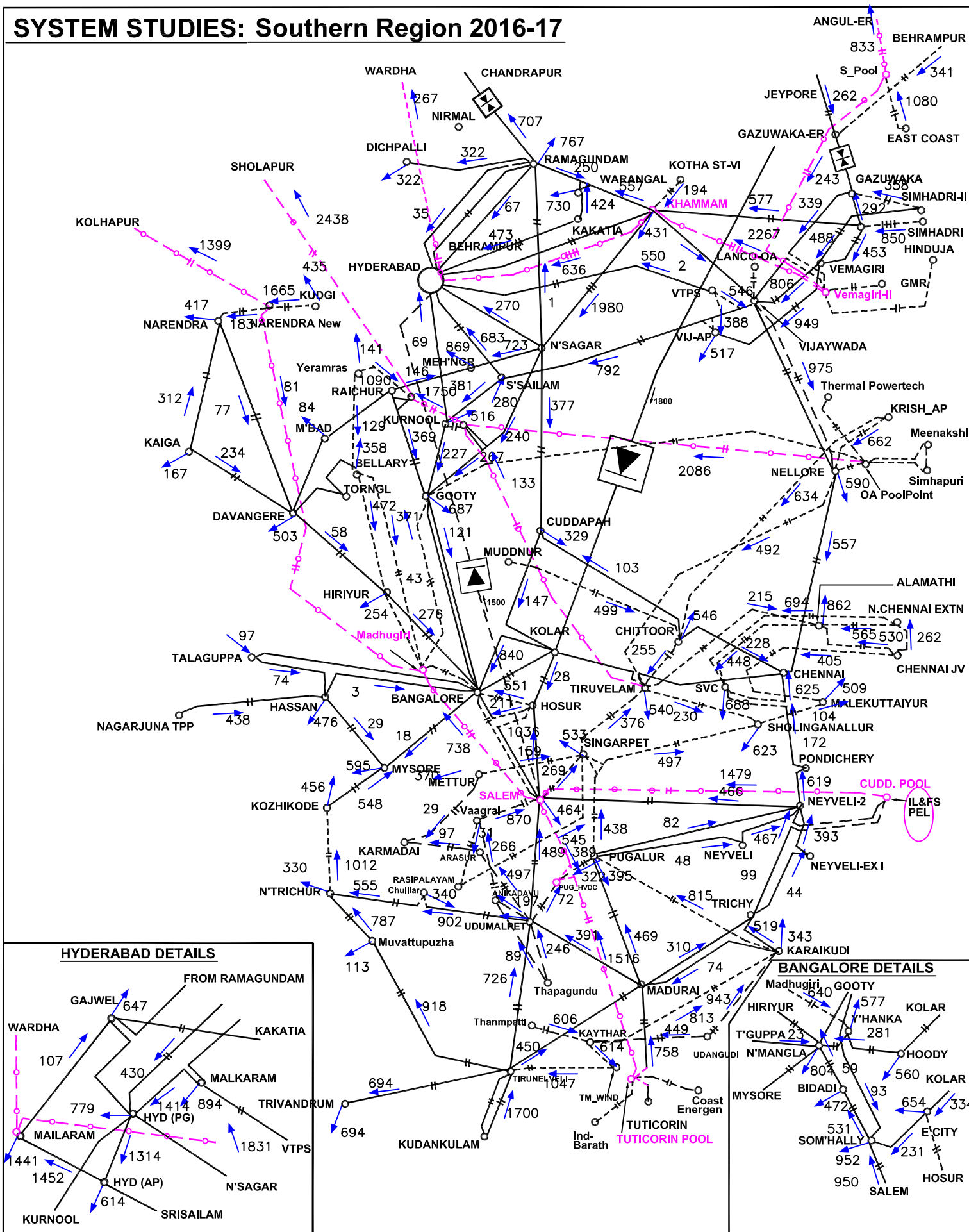
D.2 Presently SR is having a peak deficit of more than 5000 MW. Load in SR is expected to increase atleast by another 20000 MW in 12th Plan. The envisaged 33500 MW of installed capacity can give a maximum generation availability of 25000 MW. Out of above list, some of the projects (shown in grey in above list) may get delayed/dropped / or may generate less due to issues related to coal, gas availability, environment etc. This uncertainty would have an impact of about 5000 - 8000 MW in availability of power for SR by 12th Plan.

D.3 Further, there are proposals in the pipeline for addition of about 10000 MW of non-conventional (mainly wind) capacity (TN-6000, KTK-500 & AP-3500) during 12th Plan period in SR. It is not certain that how much of non-conventional(wind) generation may be actually added. If all the 10000 MW is added, it would give additional 6000 MW peak during some months. This generation is generally

available during March-October months and even in these months, it has intermittent nature. Considering the uncertainties of generation addition, fuel availability and dispatchable power from wind projects, a need is felt to plan a system that would enable – (i) import of power into SR under deficit scenario, (ii) export in case of surplus, (iii) operate the grid under intermittency of wind generation to meet power requirements of SR constituents and also to decongest the grid.

- D.4 Provision of an HVDC bipole line within SR grid is therefore proposed as system strengthening scheme which would cater to above needs. This system is planned to be linked with already planned Wardha – Hyderabad 765kV D/C line. The Srikakulam PP – Vemagiri-II 765kV D/C(operated at 400kV) line that was earlier agreed in last meeting is also very helpful in case of import of power by SR. System study results for high-wind/no-wind and with optimistic/pessimistic generation addition scenarios have been carried out. Study results are given at Exhibit: D.I - to - D.IV.
- D.5 Accordingly, following system is proposed as system strengthening scheme in Southern Region:
- (i) Establishment of a New Pugalur HVDC terminal(2500 MW) S/S having provision of 400kV S/S and upgradable to 765kV at later date.
 - (ii) HVDC terminal (2500 MW) at Hyderabad(PG)
 - (iii) New Pugalur – Hyderabad HVDC bipole of ± 500 kV, 2500 MW
 - (iv) New Pugalur – Udumalpet 400kV quad D/C line
 - (v) New Pugalur – Pugalur 400kV quad D/C line
 - (vi) LILO of Tuticorin PP – Salem(New) 765kV line (initially operated at 400kV) at New Pugalur
 - (vii) New Pugalur to be upgrade to 765kV with 765/400kV 2x1500 MVA ICT when Tuticorin PP – Salem(New) is operated at 765kV
- D.6 Member may discuss.

SYSTEM STUDIES: Southern Region 2016-17

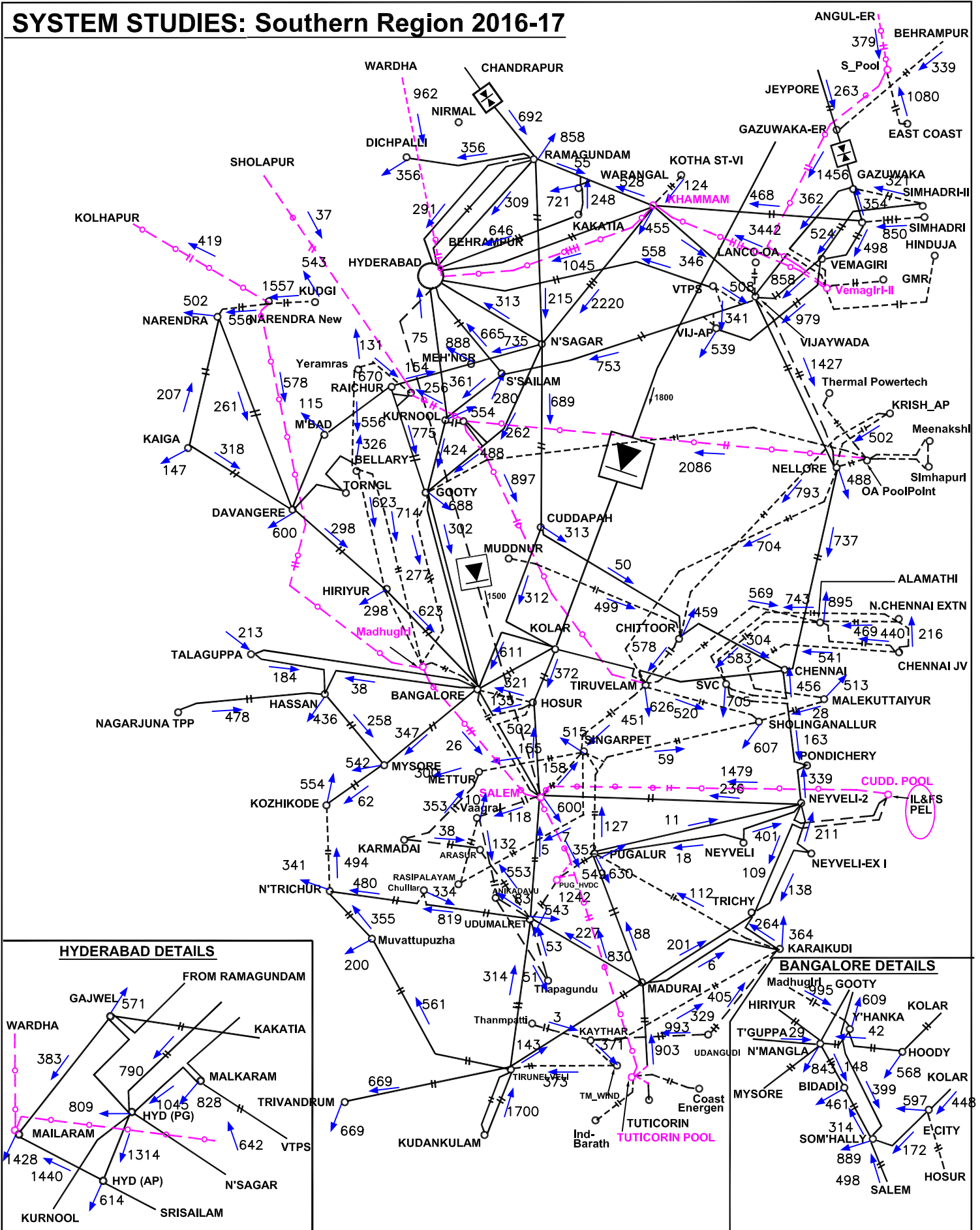


Demand: Peak Load

Wind Gen: High Wind Generation

SR Import(-)/Export (+) : +3200 MW (+5000-1800)

SYSTEM STUDIES: Southern Region 2016-17

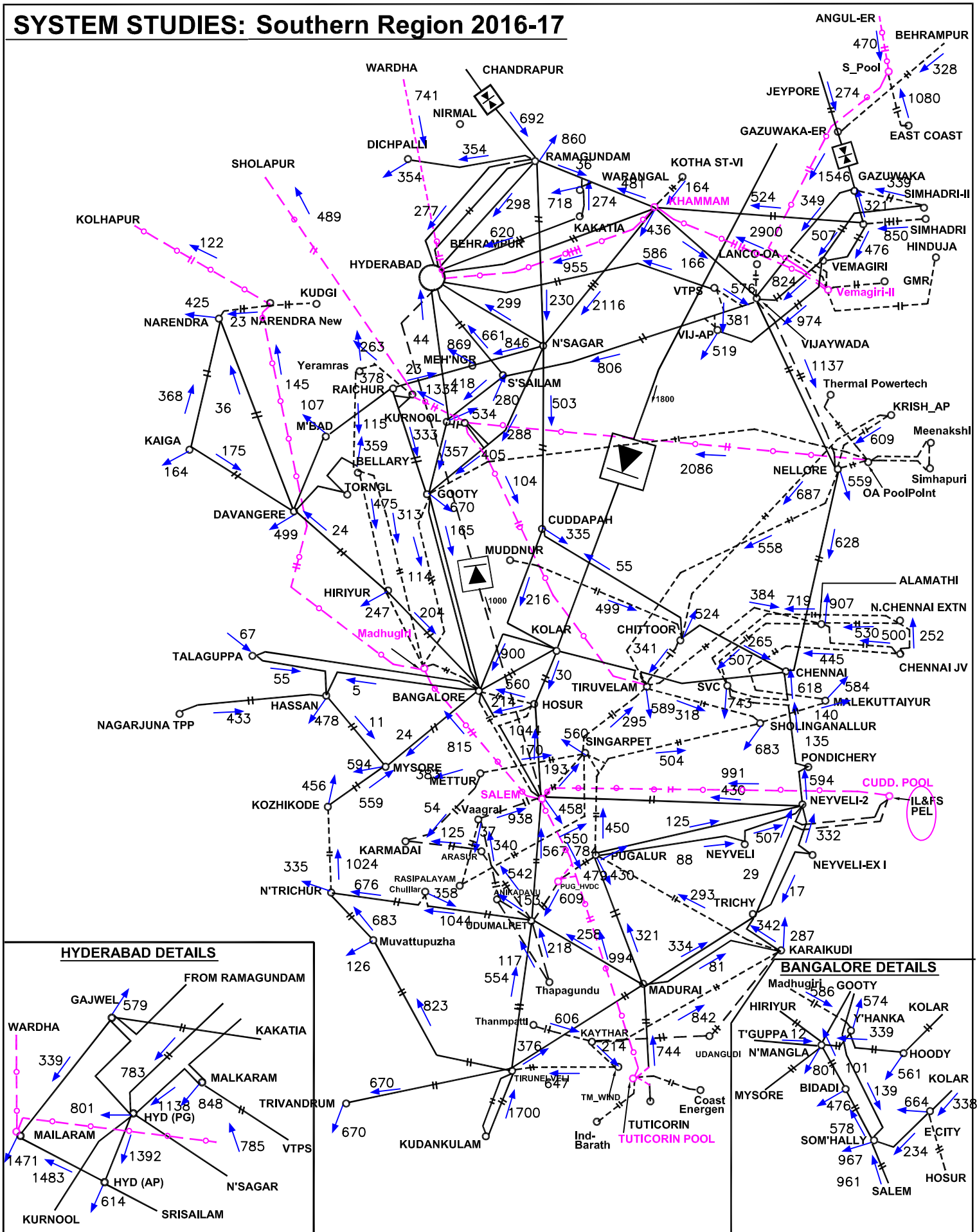


Demand: Peak Load

Wind Gen: No Wind Generation

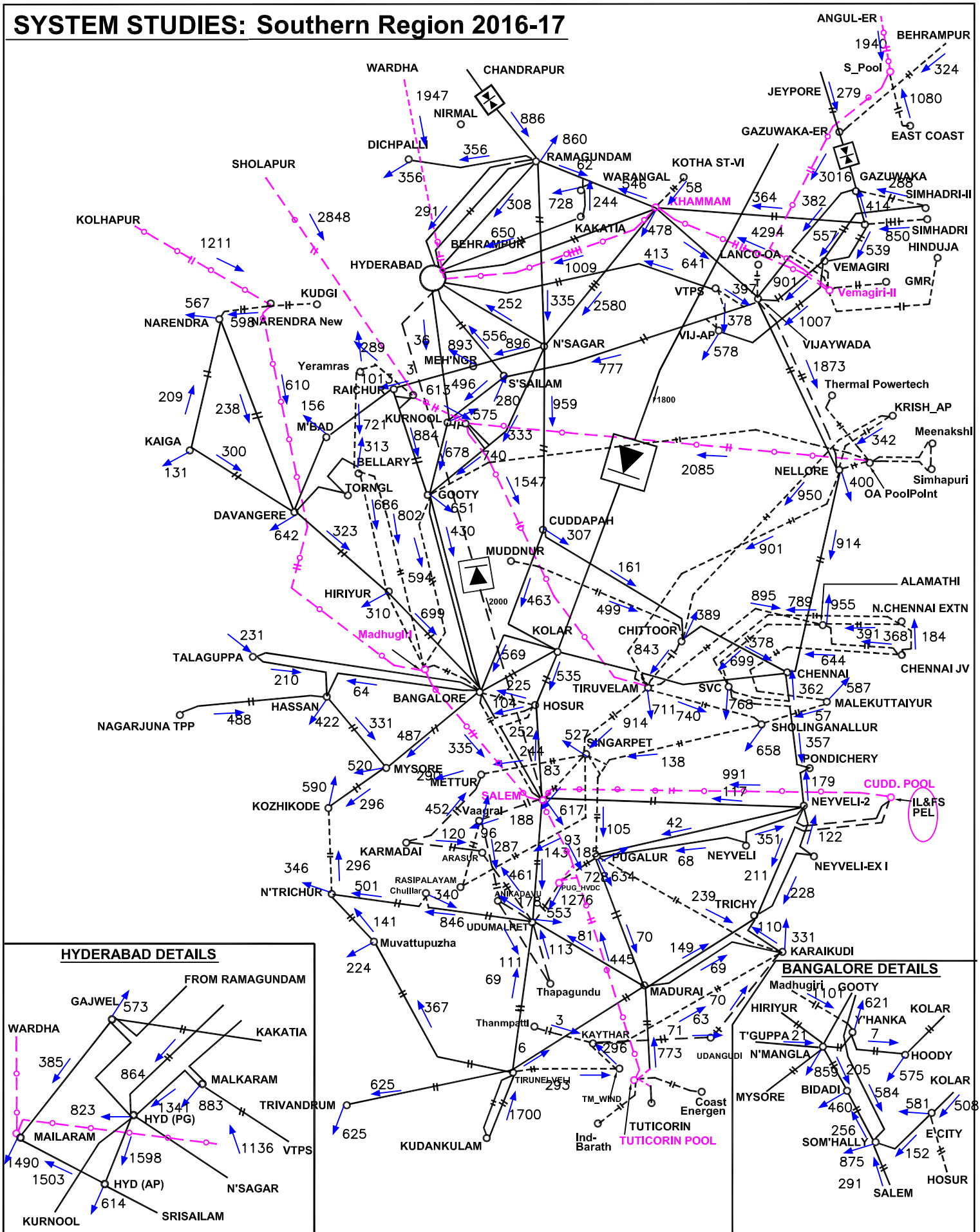
SR Import(-)/Export (+) : -4080 MW (-2280-1800)

SYSTEM STUDIES: Southern Region 2016-17



Pessimistic Scenario Demand: Peak Load Wind Gen:High Wind Generation SR Import(-)/Export (+) : -3800 MW (-2000-1800)

SYSTEM STUDIES: Southern Region 2016-17



Pessimistic Scenario Demand: Peak Load Wind Gen: No Wind Generation SR Import(-)/Export (+) : -11300 MW (-9500-1800)

Annexure-I

Feasibility Inputs for Installation of Additional 500 MVA, 400/220kV ICT at Substations in Southern Region

Sl. No.	Name of Substation	Availability of Space & Bay no. For			Site Constraint, if Any (related to other utility)	Action plan for the same	Existing 220kV bays
		400KV ICT Bay	220KV ICT Bay	04 nos. 220KV Line Bays			
01.	Pulgur	Yes	Yes	Yes	Nil	N/A	04 Nos. 2-Pugalur, 1-Alandur, 1-Myvadi
02.	Kalivanthaapattu (Melakottiyur)	Yes	Yes	Yes (for 03 nos. only)	04 th Line bay is not possible due to Public Road adjacent to yard area	--	04 Nos. 1-Sirusseri, 1-SP Koil, 1-Kadaperi, 1-Acharpakkam
03.	Mysore	Yes	Yes	No	Additional Line bays not possible.	--	09 Nos. 1-Tubinkere, 2-Hutgalli, 1-Kushal Ngr, 2-Kadkola, 1-Gopalpura, 2-U/c
04.	Narendra	No	No	No	---	---	06 Nos. 2-Mahalingapur, 2-Hubli, 2-Ghatprabha
05.	Trichy	Yes (407)	Yes (In POWERGRID Land)	Yes (In POWERGRID Land)	220KV syard owned by TNEB does not have space. New 220KV extension is to be done in POWERGRID land with Bus Interconnection through 220KV Cable / BPIs. 02 nos. Bus section bay and 01 no. TBC bay will be required.	Consent of TNEB required. Interconnection through BPI /HV cable is required becoz existing 400KV D/C line is to be crossed by the 220KV Bus interconnector. Additionally, 02 nos. Bus-section bays and 01 no. TBC	07 Nos. 2-Thanjavur, 1-Pudukottai, 2-Trichy, 1-Alakoil, 1-Pugalur

Sl. No.	Name of Substation	Availability of Space & Bay no. For			Site Constraint, if Any (related to other utility)	Action plan for the same	Existing 220kV bays
		400KV ICT Bay	220KV ICT Bay	04 nos. 220KV Line Bays			
						bay will be required.	
06.	Somanhally	Yes		Yes at KPTCL	At KPTCL, feeder presently marked as Malur-I feeder but presently spare, can be used for ICT. For line feeder space is available for bay construction	Consent of KPTCL is required.	08 Nos. 2-Bidadi, 1-Yerandahalli, 1-NRS, 1-TK Halli, 1-ITPL, 1-HSR Layout, 1-Subramayapura
07.	Warangal	Yes(409)	Yes(202)	Yes (201, 211 to 213)	Nil	Nil	04 Nos. 2-Nagaram, 2-Durshed,
08.	Hyderabad	Yes(421)	Yes at APTRANSCO	YES at APTRANSCO	One existing 220KV Bay at APTRANSCO to be shifted for ICT bay. For constructing Line bays, Shifting of their 132KV line and POWERGRID 400KV HYD-Kurnool line is required.	POWERGRID to give consent for shifting of 400KV Line. APTRANSCO site has expressed consent to shift their 132KV line.	04 Nos. 2-Malkaram, 2-Chandrayangutta, 2-ICT (100 MVA), 1-ICT (160 MVA), 7-132kV Lines
09.	Kadapa	Yes(416 & 417)	Yes at APTRANSCO	Yes at APTRANSCO	Only 02 nos. 220KV bays can be accommodated in existing yard, for other 03 line bays, switchyard extension is required.	APTRANSCO to give consent for the same.	06 Nos. 2-RTPP, 1-Rajampeta, 1-Renigunta, 1-Kadapa, 1-Kalikiri, 1-ICT (100 MVA) 2-132kV Lines
10.	Khammam	Yes(419 & 420)	Yes at APTRANSCO	No. But adjacent area	Distance between our 220KV ICT Gantry to	Modalities to be finalized for using	07 Nos. 2-KTPS, 2-Warangal,

Sl. No.	Name of Substation	Availability of Space & Bay no. For			Site Constraint, if Any (related to other utility)	Action plan for the same	Existing 220kV bays
		400KV ICT Bay	220KV ICT Bay	04 nos. 220KV Line Bays			
			New Yard under construction (nearby existing yard)	owned by POWERGRID near the APTRANSCO New 220KV Yard can be used.	APTRANSCO New Yard gantry is 340Mtrs.	POWERGRID area for 04 nos. 220KV line bays and for Tower arrangement to connect ICT feeder from our yard to APTRANSCO new yard.	1-Bhongir, 1-M Guda, 1-WK Palli 2-ICT (100 MVA) 6-132kV Lines
11.	Gooty	Yes	Yes at APTRANSCO	Yes at APTRANSCO	Take off of new 220KV Lines from APTRANSCO yard may be difficult due to various 220KV line crossings.	APTRANSCO to confirm for the Line take off from proposed line bays.	08 Nos. 1-UT, 1-BR Palli, 2-Gooty, 2-Sulurupet, 1-Anantpur, 1-Hindupur
12.	Vijayawada	Yes	Yes at APTRANSCO (After shifting B/C bay)	YES, 02 nos. at APTRANSCO, but for other 02 nos. adjacent POWERGRID land has to be used.	Shifting of B/C bay at APTRANSCO for ICT bay. Use of POWERGRID land for 02nos. 220KV line bays	Mutual consent required.	06 Nos. 2-VTS, 1-KTS, 1-Gunadala, 2-Gudivada, 1-ICT (100MVA)