

**QUARTERLY REPORT
OF
SOUTHERN REGION (OCT-DEC'14)**



**SOUTHERN REGIONAL LOAD DESPATCH CENTRE
POWER SYSTEM OPERATION CORPORATION LTD
BANGALORE**

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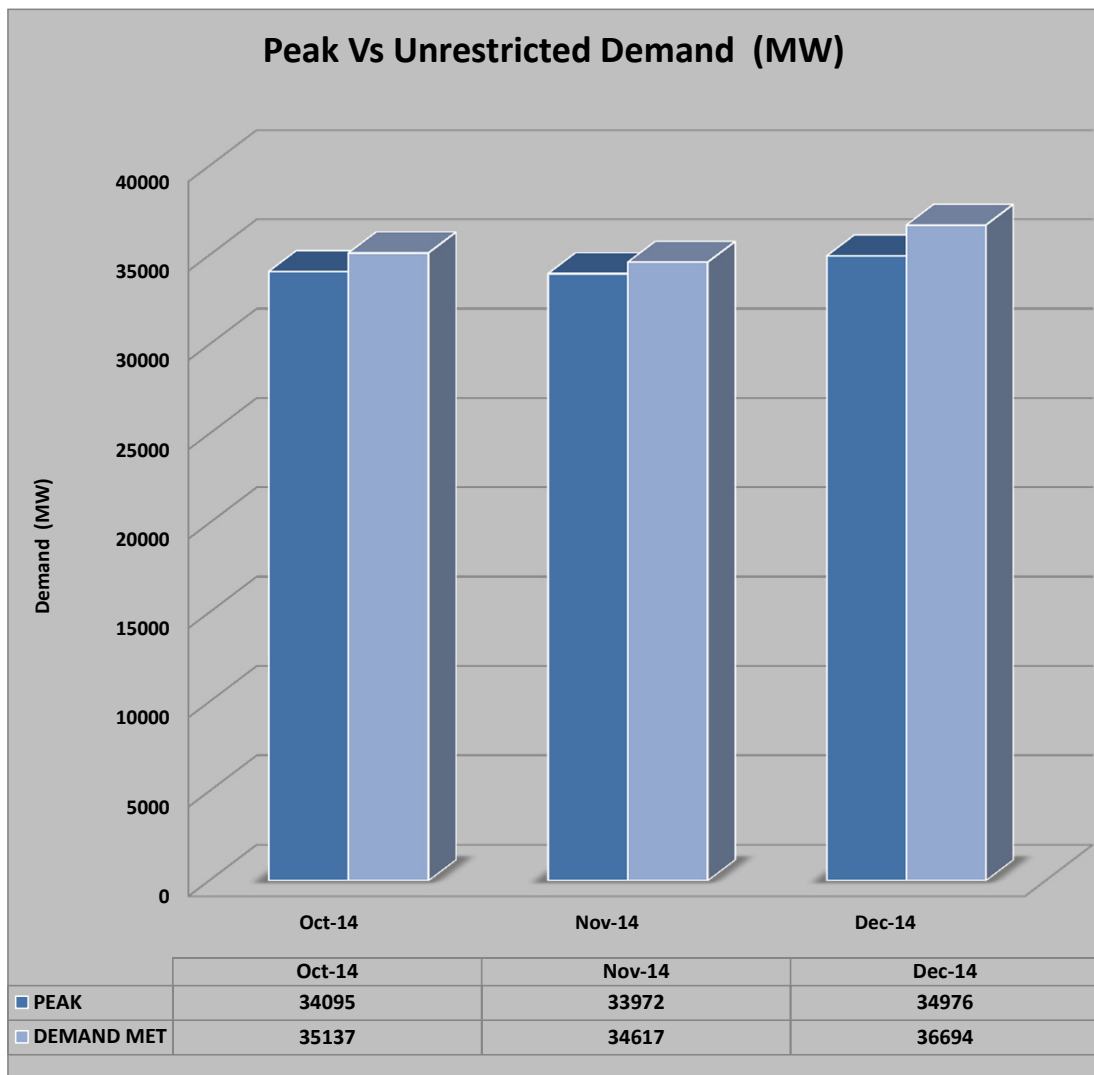
1. POWER SUPPLY POSITION

a) Peak Demand Met and Unrestricted Demand

Month	State/UT	Peak Demand Met (MW)	Unrestricted Demand (MW)	Shortage (MW)	Shortage (%)
Oct-14	Andhrapradesh	6482.00	6492.45	10.45	0.16
	Telangana	6648.00	7422.26	774.26	10.43
	Karnataka	7573.99	7994.70	420.71	5.26
	Kerala	3280.87	3280.87	0.00	0.00
	Tamilnadu	11799.70	12518.92	719.22	5.75
	Pondicherry	312.00	317.33	5.33	1.68
	S.Region	34095.00	35137.00	1042.00	2.97
Nov-14	Andhrapradesh	6030.00	6081.00	51.00	0.84
	Telangana	5964.00	6133.00	169.00	2.76
	Karnataka	7955.00	8244.00	289.00	3.51
	Kerala	3346.00	3493.00	147.00	4.21
	Tamilnadu	11411.00	11411.00	0.00	0.00
	Pondicherry	305.00	305.00	0.00	0.00
	S.Region	33972.00	34617.00	645.00	1.86
Dec-14	Andhrapradesh	5976.00	5993.00	17.00	0.28
	Telangana	6445.00	6664.00	219.00	3.29
	Karnataka	8967.00	9256.00	289.00	3.12
	Kerala	3390.00	3457.00	67.00	1.94
	Tamilnadu	11638.00	12121.00	483.00	3.98
	Pondicherry	312.00	317.00	5.00	1.58
	S.Region	34976.00	36694.00	1718.00	4.68

b.) SR Demand chart

Month	Peak Demand(MW)	Demand Met(MW)	Shortage(MW)	% Shortage
Oct-14	35137.00	34095.00	1042.00	3.06
Nov-14	34617.00	33972.00	645.00	1.90
Dec-14	36694.00	34976.00	1718.00	4.91

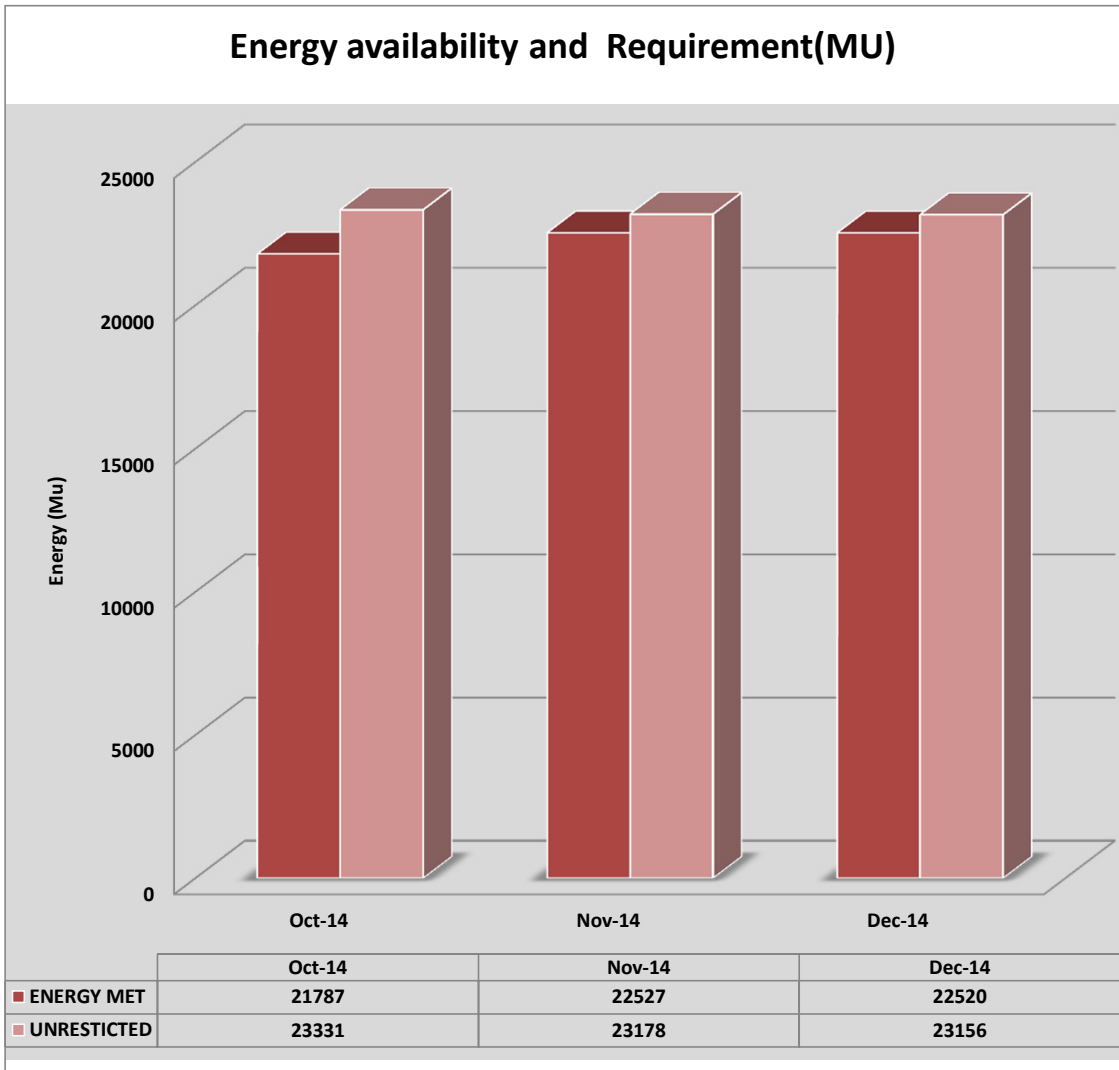


c) Energy availability and Requirement(MU)

Month	State/UT	Energy met Avg/Day (MU)	Requirement Avg/Day (MU)	Shortage (MU)	Shortage (%)
Oct-14	Andhrapradesh	3833.03	4184.64	351.61	8.40
	Telangana	4242.47	4892.92	650.45	13.29
	Karnataka	4503.30	4708.11	204.81	4.35
	Kerala	1809.53	1827.63	18.10	0.99
	Tamilnadu	7212.07	7527.99	315.92	4.20
	Pondicherry	186.79	189.50	2.71	1.43
	S.Region	21787.19	23330.79	1543.60	6.62
Nov-14	Andhrapradesh	4005.00	4041.00	36.00	0.89
	Telangana	4166.00	4425.00	259.00	5.85
	Karnataka	4500.00	4696.00	196.00	4.17
	Kerala	1739.00	1754.00	15.00	0.86
	Tamilnadu	7922.00	8065.00	143.00	1.77
	Pondicherry	195.00	197.00	2.00	1.02
	S.Region	22527.00	23178.00	651.00	2.81
Dec-14	Andhrapradesh	4066.00	4077.82	11.82	0.29
	Telangana	3881.03	3984.06	103.03	2.59
	Karnataka	5221.83	5403.23	181.40	3.36
	Kerala	1825.70	1845.75	20.05	1.09
	Tamilnadu	7348.75	7668.03	319.28	4.16
	Pondicherry	176.79	176.98	0.19	0.11
	S.Region	22520.10	23155.87	635.77	2.75

d) Energy availability and Requirement(MU) chart

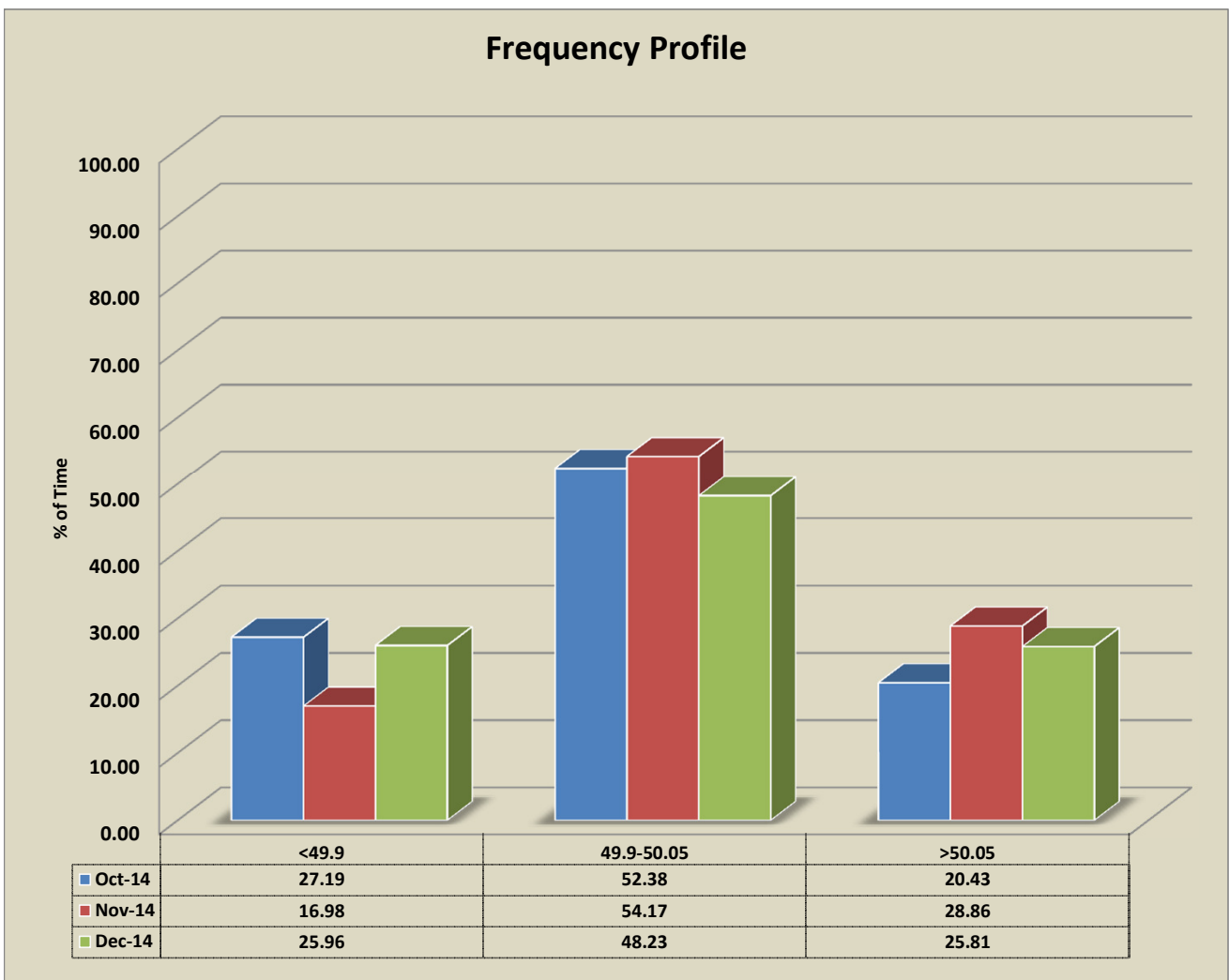
Month	Requirement (MU)	Availability(MU)	Shortage	% Shortage
Oct-14	23331.00	21787.00	1544.00	7.09
Nov-14	23178.00	22527.00	651.00	2.89
Dec-14	23156.00	22520.00	636.00	2.82



2. QUALITY OF SERVICE

a) Frequency Profile (% time)

Month	<49.7	<49.7-49.9	49.9-50.05	>50.05-50.20	>50.2
Oct-14	1.62	25.57	52.38	19.73	0.70
Nov-14	0.43	16.54	54.17	27.19	1.66
Dec-14	1.35	24.61	48.23	23.25	2.56



b) Voltage Profile

Month	Oct-14		Nov-14		Dec-14	
Station	Max(kV)	Min(kV)	Max(kV)	Min(kV)	Max(kV)	Min(kV)
Ramagundam	420	400	419	406	422	403
Hyderabad	425	396	426	405	429	403
Bangalore	421	383	420	380	420	378
Madras	430	402	429	409	433	411
Neyveli	420	402	418	402	418	402
Kolar	431	397	431	396	428	395
Vijaywada	428	409	431	414	433	410
Trichur	416	383	412	380	417	381
Udumalpet	417	391	410	385	414	385

3. INTER-REGIONAL EXCHANGES(PHYSICAL) in MU

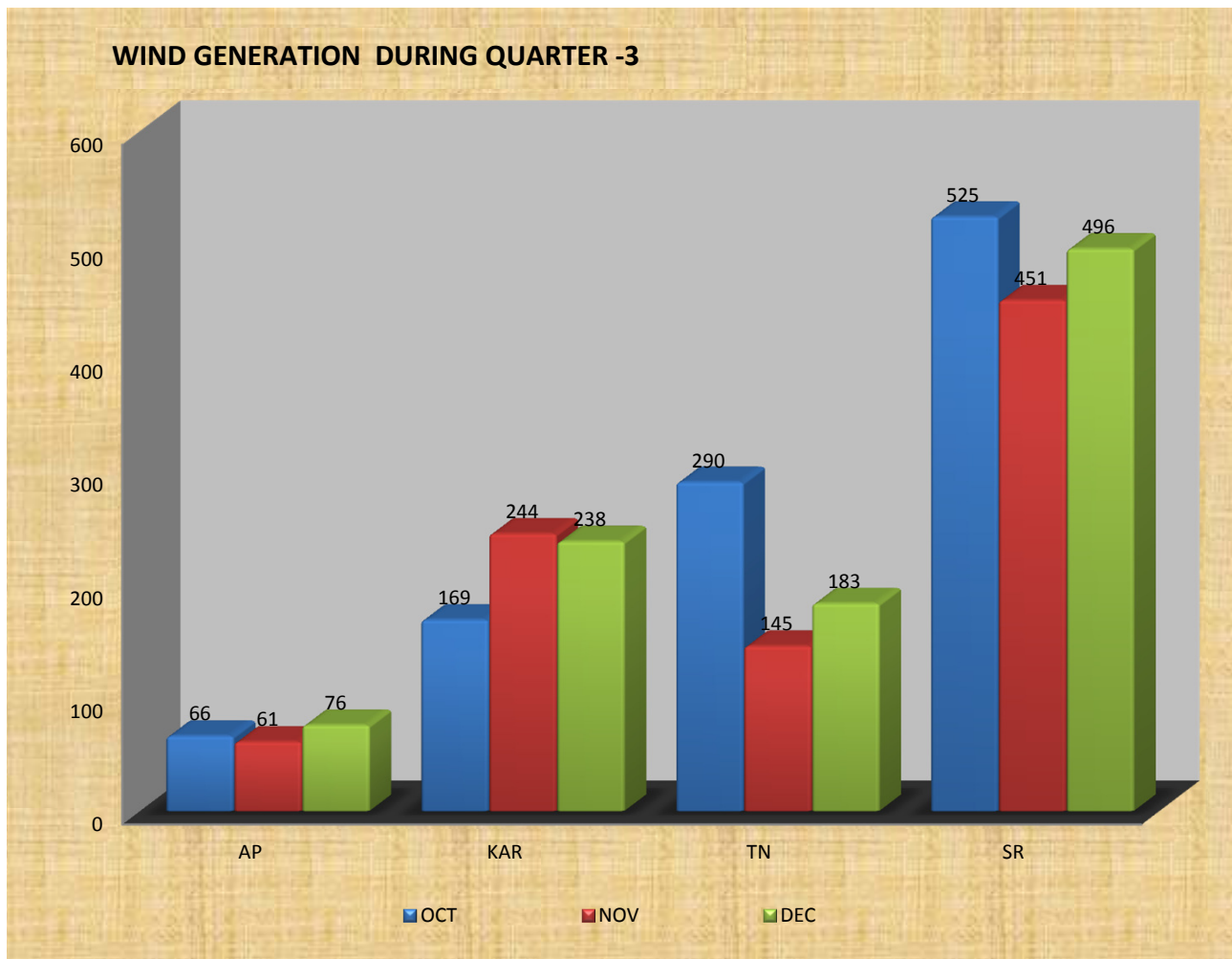
Month	Bhadravati	Gazuwaka	Talcher-Kolar	Raichur-Sholapur Line	
	Import SR(MU)	Import SR(MU)	Import SR(MU)	Import SR(MU)	Export from SR(MU)
Oct-14	732.95	182.83	1454.94	225.86	30.8
Nov-14	701.52	0	1463.47	319.22	4.17
Dec-14	721.41	432.16	1377.62	254.56	19.48

4. SCHEDULE Vs ACUAL DRAWAL BY STATES

Month	State/UT	Schedule (MU)	Drawal (MU)	OD(+)/UD(-)
Oct-14	APTRANSCO	877.58	885.38	7.8
	TSTRANSCO	1984.74	2088.58	103.84
	KPTCL	404.45	454.7	50.25
	KSEB	842.42	907.12	64.7
	TNEB	1943.58	1982.43	38.85
	PONDY	182.49	186.79	4.3
	GOA	50.54	46.99	-3.55
Nov-14	APTRANSCO	789.79	846.4	56.61
	TSTRANSCO	1968.36	2055.44	87.08
	KPTCL	596.09	658.46	62.37
	KSEB	973.9	1038.82	64.92
	TNEB	2047.45	2094.33	46.88
	PONDY	171.11	170.69	-0.42
	GOA	64.01	59.99	-4.02
Dec-14	APTRANSCO	789.31	881.89	92.58
	TSTRANSCO	2173.04	2251.08	78.04
	KPTCL	821.75	899.26	77.51
	KSEB	1220.73	1302.19	81.46
	TNEB	2360.05	2390.68	30.63
	PONDY	178.36	176.79	-1.57
	GOA	66.76	61.13	-5.63

5.)Wind Generationin Southern region during Quarter-3

Month	AP(MU)	KAR(MU)	TN (MU)	SR (MU)
Oct-14	66.18	168.58	289.88	524.64
Nov-14	61.05	244.48	145.47	451.00
Dec-14	75.75	237.64	183.01	496.41



5.1)% of wind in the total demand met by Region

Month	TOTAL WIND(MU s)	ENERGY MET (MU s)	%ENERGY MET
Oct-14	524.64	21787.00	2.41
Nov-14	451.00	22527.00	2.00
Dec-14	496.41	22520.00	2.20

6. SUMMARY REPORT

I)IMPORTANT EVENTS

a)COMMISSIONING OF NEW GENERATING UNITS

SL.NO.	STATE/ISGS	STATION NAME	CAPACITY (MW)	TYPE	DATE
1	CGS	Neyveli II EXP2 Unit#2	250.000	Thermal(Lignite)	23-11-2014
2	STATE	SDSTPS U#2	800.000	THERMAL	16-12-2014
3	IPP	TPCIL U#1	660.000	THERMAL	22-12-2014
4	IPP	SEPL U#4	150.000	THERMAL	30-12-2014

b)COMMISSIONING OF NEW TRANSMISSION LINES

SL.NO.	CONSTITUENT	LINE NAME	KV	LENGTH	DATE
1	PGCIL	KURNOOL-NPS 1	765	303.000	01-11-2014
2	PGCIL	KURNOOL-NPS 2	765	303.000	01-11-2014
3	PGCIL	KURNOOL-TIRUVELLAM 1	765(charged @400kV)	390.000	27-11-2014
4	PGCIL	KURNOOL-TIRUVELLAM 2	765(charged @400kV)	390.000	27-11-2014

c)COMMISSIONING OF NEW SUBSTATIONS

SL.NO.	CONSTITUENT	STATION NAME	KV RATIO	CAPACITY (MVA)	DATE
1	POWERGRID	TUTICORIN POOLING STATION	765/400	-	31-12-2014

d)COMMISSIONING OF NEW LINE / BUS REACTORS

SL.NO.	CONSTITUENT	STATION NAME	BUS/LINE	CAPACITY (MVAR)	DATE
1	POWERGRID	TUTICORIN POOLING STATION	BUS	80	31-12-2014

*** Phase shifting transformer(1x315 MVA) commissioned on 01-Dec-14 at KTPS

*** This is the first Phase shifting Transformer commissioned in INDIA

e) Transmission constraints & Voltage problems affecting Grid operation including major Grid disturbances

i) ट्रांसमिशन कन्स्ट्रेंट / Transmission Constraints:

S. No	Corridor	Season/ Antecedent Conditions	Description of the constraints
1	400kV Kolar-Hosur DC line	Whole year	S2 bid area drawl is limited by N-1 of these lines.
2	400kV Hiriyur-Nelamangala DC line	Whole year	With Full generation at Jindal and BTPS, and wind generation high, the flow on 400kV Hiriyur-Nelamangala DC line continuously near to 550MW. Also the 765kV Sholapur-Raichur DC line commissioned without downstream 400kV Gooty-Madhugiri-Yelahanka DC line) Network creating further increasing the flow.
3	400kV Udumalpet-Palakkad DC line	Whole year	Kerala drawl is mainly through 400kV Udumalpet-Palakkad DC line. Kerala drawl capability will be limited by this line.
4	400kV Jindal-BTPS SC Line	Whole year	With the full generation at Jindal, 400kV Jindal-BTPS SC line getting loaded beyond 650 MW. Other evacuation paths are 400kV Jindal-Guttur and Two ICTs. But at 220kV side also generation is available.
5	220 kV Bangalore Metro Network	Whole Year	220 kV Metro networks (Bangalore Urban area) are now radialised to prevent overloading of lines. The radicalisation decreases the reliability of supply.
6	Overloading of 220 kV Shoolagiri-Hosur(TN)-Yerrandahalli-Somanahalli SC line	Whole Year	Somanahalli, Yerrandahalli and Hosur are Industrial areas. 220kV Yerrandahalli is connected with Hosur(TN) and Somanahalli. Normally, 220kV Yerrandahalli split and part of load is fed from Hosur(TN) as the Entire load cannot be met from either side(Somanahalli or Hosur). The line loading on this line also causes high flows on Shoolagiri-Hosur 230 kV S/C line.

S. No	Corridor	Season/ Antecedent Conditions	Description of the constraints
7	220 kV Sharavathy-Shimoga lines (4 nos) and 220 kV Sharavathy-Talaguppa D/C	During Sharavathi generation is full	With full generation at Sharavathy (>900 MW) there is no N-1 reliability on 220 kV Sharavathy-Shimoga lines (4 nos >150 MW each) and 220 kV Sharavathy-Talaguppa D/C (>180 MW each). With the commissioning of re arrangement at Sharavathy-Talaguppa, the constraint on 220 kV Sharavathy-Talaguppa D/C would be solved to a certain extent.
8	Constraints in Coastal and South AP	Whole Year	The Southern and coastal AP loads have increased and with increased generation at Rayalaseema TPP (5 units on bar at present , 220 MW each and 5th unit has been added without augmenting the evacuation which was designed for 2 units of 220 MW) the loadings on the following 220 kV lines are of concern, 220kV Chinakampalli-Renigunta, 220kV Chinakampalli-Rajampe, 220kV Chinakampalli-Kalkiri SC line, 220kV RYTPP-Chinakampalli D/C line, 220kV Tadikonda-Ongole, 220 KV VTS-PODILI SC line, 220 KV VTS- NARASARAOPET SC line, 220 KV VTS- TADIKONDA DC line, 220kV Nunna-Gunadala SC line, 220kV Nunna-VTS SC line, 220kV KTS-Khammam D/C line, 220 KV KTS- Shapur Nagar S/C line
9	Northern Kerala System	Whole Year except in Monsoon	At present the North Kerala loads are largely fed from 400/220kV Madakathara , 400/220kV Palakkad and through 220kV Kadkola-Kaniyampeta link which is feeding loads of Kaniyampeta, Vadakara and Thali paramba through split bus at Areakode and Kanhirode. The transmission line feeding to these stations are already highly stressed.
10	Constraints in Chennai 230kV System	Whole Year	230kV Alamatty-Manali DC line, 230kV Manali-koratur, 230kV Kalavindapattu-S.PKoil, 230kV Kalavindapattu-Siruseri, 230kV NCTPS-ETPS line are severely loaded.
11	Constraints in 230kV Evacuation lines of MTPS and Kundah complex	Whole year	230kV Kundah PH4-Thudialur line, 230kV MTPS-MTPS-III-Gobi line, 230kV MTPS-Ingur line and 230kV Pugalur4-Mywadi line

ii) ICT Constraints:

S. No	ICT	Season/ Antecedent Conditions	Description of the constraints
1	400/220kV 2x315MVA ICTs at Gazuwaka SS	During peak period of every day	N-1 condition not satisfies in few occations
2	400/220kV 2x315MVA ICTs at Nellore SS	During peak period of every day	N-1 condition not satisfies in few occations
3	400/220kV 2x315MVA ICTs at Vemagiri SS	During peak period of every day	N-1 condition not satisfies in few occations
4	400/220kV 2X500 MVA ICTs at Somanahalli	During peak period of every day	N-1 condition not satisfies in few occations
5	400/220kV 2X315MVA ICTs at Mysore	During peak period of every day	N-1 condition not satisfies in few occations
6	400/220kV 2X315MVA ICTs at Kalvindapattu	During peak period of every day	N-1 condition not satisfies in few occations
7	400/220kV 2X315MVA ICTs at Pugalur	During peak period of every day	N-1 condition not satisfies in few occations

iii) Low Voltage:

S. No	Nodes	Season/ Antecedent Conditions	Description of the constraints
1	400kV Somanhalli SS,	During peak load condition	Voltages are low during the peak load condition
2	400kV Nelamngala SS,	During peak load condition	Voltages are low during the peak load condition
3	400kV Udumalpet Ss	During peak load condition & high wind period	Voltages are low during the peak load condition & high wind period
4	400kV Salem SS	During peak load condition & high wind period	Voltages are low during the peak load condition & high wind period
5	400kV Palakkad Ss	During peak load condition	Voltages are low during the peak load condition
6	400kV Trichur SS	During peak load condition	Voltages are low during the peak load condition

iv) High Voltage:

S. No	Nodes	Season/ Antecedent Conditions	Description of the constraints
1	400kV Vijayawada SS	Whole Year	Voltages remain very high most of the time
2	400kV Vemagiri SS	Whole Year	Voltages remain very high most of the time
3	400kV Gooty SS	Monsoon period and off peak period	Voltages at Gooty, Karnool and Srisailam remain very high during monsoon period and offpeak condition.
4	400kV Karnool SS		
5	400kV Srisailam SS		
6	400kV Kaiga SS	Whole Year	During Low generation period and offpeak period 400kV Kaiga, 400kV Narendra Voltage are very High.
7	400kV Guttur SS	Whole Year	
8	400kV Narendra SS	Whole Year	
9	400kV Tirunelveli SS	During off peak	During Low wind condition and offpeak condition Voltages are very High
10	400kV Koodankulam SS		
11	400kV Sriperumbudur SS	During off peak	Voltages remain very high most of the time
12	765kV Raichur SS	During off peak	Voltages remain very high most of the time
13	765kV Karnool SS		
14	765kV Nellore PS		

f) Major disturbances affecting Grid operation

i) Grid Disturbances

S. No	Outage		Region	Event	Generation / Load Loss	Category as per CEA Grid Standards
	Date	Time				
1	05-10-2014	17:22	SR	Tripping of 220kV Kaiga-Kadra, 220kV Kaiga-Kodasalli, 220kV Kadra-Kodasalli, tripping of Unit at Kodasalli, 220kV Bus dead at Kadra and Kodasalli occurred.	Gen loss at Kodasalli : 35MW	GD-1
2	12-10-2014	8:00	SR	Multiple tripping in Andhra due to Hud-Hud cyclone. Complete station outage at : 400kV stations-Gajuwaka, Kalpakka, Hinduja, Simhadiri; & 220kV Stations :	Gen loss:2000 MW , Load loss:1500 MW	GD-1
3	14-10-2014	15:18	SR	Tripping of running Units at Kodasalli due to tripping of evacuating lines.	Gen loss at Kodasalli : 74MW	GD-1
4	25-10-2014	2:04	SR	De-energization of 220kV Mahalingapura substation due to tripping of all connected 220kV lines.	Load loss : 322 MW	GD-1
5	05-11-2014	11:42	SR	Complete outage of 400kV Guttur Station of KPTCL	Nil	GD-1
6	11-11-2014	2:02	SR	Blackout in 220kV North Kerala System	Load loss : 470 MW	GD-1
7	12-11-2014	17:37	SR	Blackout in 220kV North Kerala System	load loss : 250MW	GD-1
8	13-11-2014	19:31	SR	Tripping of 220kV Kaiga-Kadra, 220kV Kaiga-Kodasalli, 220kV Kadra-Kodasalli, 220kV Bus dead at Kadra and Kodasalli occurred.	Nil	GD-1
9	23-11-2014	17:45	SR	Complete outage of 220kV Upper sileru staion of APTRANSCO	NII	GD-1
10	22-12-2014	22:15	SR	Complete outage of 220kV Upper sileru Hydro Power station of APGENCO	Gen loss : 120MW	GD-1
11	22-12-2014	21:12	SR	Complete outage of 220kV Ambewadi substation of KPTCL	Load loss : 110MW	GD-1
12	24-12-2014	22:40	SR	Complete outage of 220kV Upper sileru Hydro Power station of APGENCO	---	GD-1

ii) Grid Incidents						
S. No	Outage		Region	Event	Generation/Load Loss	Category as per CEA Grid Standards
	Date	Time (Hrs)				
1	31-Oct-14	6:45	SR/WR	Tripping of HVDC BHADRAVATHI POLE 2 Reason: AUXILLARY POWER SUPPLY FAILURE	NIL	GI-2
2	25-Oct-14	2:24	SR	Tripping of 400 kV UDUMALPET - TIRUNELVELI 1 and 400/230kV ICT-2 at Tirunelveli substation Reason: Line TRIPPED ON Y-N FAULT. LBB of Tie breaker had operated due to problem in Tie breaker	NIL	GI-2
3	8-Oct-14	7:04	SR	Tripping of 400 kV NPS - TPCIL 1&2 and 400kV NPS-MEPL line Reason: Fault had occurred in Line-1. Line-2 tripped due to relay maloperation	NIL	GI-2
4	4-Oct-14	12:16	SR	400/220 kV ICT-1&2 AT UPCL Reason: ICT tripped on Back up earth fault protection	NIL	GI-2
5	2-Oct-14	4:25	SR	220 kV NEYVLI - VILLIANUR and 220kV PONDYCHERRY-VILLIANUR (EFR OPERATED)	NIL	GI-1
6	1-Nov-14	16:02	SR/WR	Tripping of HVDC BHADRAVATHI POLE 2, Reason: Failure of 48 Volt Power supply card (Type C334-I) at Pole Control Panel of South Side had caused tripping of Pole-2	NIL	GI-2
7	29-Nov-14	2:51	SR/WR	Tripping of HVDC BHADRAVATHI POLE 1, Reason: Tripped due to operation of PRD of Converter transformer	NIL	GI-2
8	1-Dec-14	11:46	SR	Tripping of 400/220 kV ICT-2 AT HOODY, Reason: ICT tripped due to maloperation of protection	Load loss : 400MW	GI-2
9	1-Dec-14	16:17	SR/WR	Tripping of 220 kV Chikodi-Talandage and 220kV Chikodi Mudshingi line, Reason: Line tripped due to fault in 220kV Chikodi-Talandage	Load Loss : 80MW	GI-1

10	10-Dec-14	1:08	SR	Tripping of 400 kV Tiruvelam-Kalivandapattu line-1&2, Reason: Lines tripped on operation of Over voltage protection	NIL	GI-2
11	11-Dec-14	8:05	SR/WR	Tripping of HVDC BHADRAVATHI POLE 1, Reason: Tripped due to operation of PRD of Converter transformer	NIL	GI-2
12	11-Dec-14	23:42	SR	Tripping of 400 kV VTPS-Satenapalli line-1&2, Reason: Lines tripped on operation of Over voltage protection	NIL	GI-2
13	12-Dec-14	21:56	SR	Tripping of 765 KV Kurnool-NPS line-2 and 765kV Raichur-Kurnool line, Reason: Lines tripped on operation of Over voltage protection	NIL	GI-2
14	13-Dec-14	9:45	SR	Tripping of 400kV Neelamangala-Hoody line-1,2 and ICT-2 at Hoody substation of KPTCL, Reason: Bus bar trip bus got energized while changing Kolar-II control cables from old C&R panel to new C&R panel.	NIL	GI-2
15	16-Dec-14	10:03	SR/ER	Tripping of HVDC TALCHER - KOLAR POLE 2, Reason: Pole-2 of HVDC of Talcher-Kolar tripped reportedly due to Valve cooling fault in Pole 2 at Kolar	Load loss due to SPS action : 1258 MW	GI-2
16	22-Dec-14	15:49	SR/WR	Tripping of HVDC BHADRAVATHI POLE 1, Reason: Tripped due to operation of PRD of Converter transformer	NIL	GI-2
17	30-Dec-14	10:11	SR	Tripping of 220/110kV ICT's at 220/110kV Kalamashery Substation, Reason: 220/110kV ICT's and 110kV bus got tripped at 220/110kV Kalamashery Substation	NIL	GI-1