

SOUTHERN REGION

POWER SECTOR PROFILE

JANUARY'2007

**GOVERNMENT OF INDIA
MINISTRY OF POWER
PROJECT MONITORING CELL
NIRMAN BHAVAN
NEW DELHI**

SOUTHERN REGION POWER SECTOR PROFILE

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ANDHRA PRADESH POWER PROFILE

	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	
INSTALLED CAPACITY (MW) as on 31st March									
Thermal	2952.50	2952.50	2952.50	2989.30	2989.30	2989.30	2989.30	2989.30	
Hydro	2599.01	2614.01	2764.01	3121.94	3421.94	3571.94	3571.94	3586.36	
Gas	542.00	542.00	892.00	1034.40	1112.40	1112.40	1112.40	1738.70	
Others	89.56	89.56	89.56	91.90	92.60	92.60	384.03	545.29	
Total	6183.07	6198.07	6698.07	7237.54	7616.24	7766.24	8057.67	8859.65	
INSTALLED CAPACITY BY OWNERSHIP (MW)									
State Sector	5653.56	5668.56	5818.56	6178.84	6478.84	6628.84	6628.84	6938.87	
Private Sector	529.51	529.51	879.51	1058.70	1137.40	1137.40	1428.83	1920.78	
Total State & Private Sectors	6183.07	6198.07	6698.07	7237.54	7616.24	7766.24	8057.67	8859.65	
Share in Central Sector Projects			901.00	1501.00	2001.00	2001.00	2501.00	2465.79	
Total			7599.07	8738.54	9617.24	9767.24	10558.67	11325.44	
CAPACITY ADDITION (MW)									
Thermal	0.00	0.00	0.00	36.80	0.00	0.00	0.00	0.00	
Gas	0.00	0.00	350.00	142.40	78.00	0.00	0.00	626.30	
Hydro	0.00	15.00	150.00	357.93	300.00	150.00	0.00	14.42	
Others	0.00	0.00	0.00	2.34	0.70	0.00	291.43	161.26	
Total	0.00	15.00	500.00	539.47	378.70	150.00	291.43	801.98	
POWER SUPPLY POSITION									
Energy (Mus)	Requirement	41958.00	45835.00	47792.00	48394.00	47223.00	48080.00	50416.00	52721.00
	Availability	38293.00	42832.00	44055.00	44302.00	44014.00	46680.00	50061.00	52154.00
	Shortage (%)	8.70	6.60	7.80	8.50	6.80	2.90	0.70	1.10
Peak (MW)	Requirement	6770.00	7209.00	8000.00	8585.00	8491.00	8679.00	8093.00	8716.00
	Peak Met	6139.00	6366.00	6835.00	6873.00	6858.00	7769.00	7903.00	8542.00
	Shortage (%)	9.30	11.70	14.60	19.90	19.20	10.50	2.30	2.00

KARNATAKA POWER PROFILE

	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	
INSTALLED CAPACITY (MW) as on 31st March									
Thermal	1309.92	1647.92	1673.12	1754.42	1964.42	1964.42	1964.42	1964.42	
Hydro	2645.55	2685.55	2745.51	2938.75	2938.75	2953.75	3298.15	3427.90	
Gas	0.00	0.00	0.00	220.00	220.00	220.00	220.00	220.00	
Others	17.01	34.22	37.82	54.80	96.20	124.30	432.48	916.92	
Total	3972.48	4367.69	4456.45	4967.97	5219.37	5262.47	5915.05	6529.24	
INSTALLED CAPACITY BY OWNERSHIP (MW)									
State Sector (including KPCL)	3810.05	4058.14	4092.80	4298.07	4508.07	4523.07	4871.97	5489.43	
Private/Licencee	162.43	309.55	363.65	669.90	711.30	739.00	1043.08	1039.81	
Total State & Private Sectors	3972.48	4367.69	4456.45	4967.97	5219.37	5262.07	5915.05	6529.24	
Share in Central Sector Stations	0.00	0.00	674.00	674.00	674.00	674.00	674.00	1255.45	
Total			5130.45	5641.97	5893.37	5936.07	6589.05	7784.69	
CAPACITY ADDITION (MW)									
Thermal	340.00	338.00	25.20	81.30	210.00	0.00	0.00	0.00	
Gas	0.00	0.00	0.00	220.00	0.00	0.00	0.00	0.00	
Hydro	158.40	40.00	59.96	193.24	0.00	15.00	344.40	129.75	
Others	11.16	17.21	3.60	16.98	41.40	28.10	308.18	484.44	
Total	509.56	395.21	88.76	511.52	251.40	43.10	652.58	614.19	
POWER SUPPLY POSITION									
Energy (MU)	Requirement	26061.00	28201.00	30242.00	32556.00	32173.00	36153.00	35156.00	34578.00
	Availability	22626.00	25851.00	27490.00	28493.00	29008.00	31145.00	33687.00	34327.00
	Shortage (%)	13.20	8.30	9.10	12.50	9.80	13.90	4.20	0.70
Peak (MW)	Requirement	4411.00	4591.00	5037.00	5338.00	6118.00	6213.00	5927.00	6160.00
	Peak Met	3726.00	3881.00	4371.00	4428.00	4805.00	5445.00	5612.00	5558.00
	Shortage (%)	15.50	15.50	13.20	17.00	21.50	12.40	5.30	9.80

KERALA POWER PROFILE

	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
INSTALLED CAPACITY (MW)								
Thermal	100.00	228.00	228.00	256.44	256.44	256.44	256.44	256.44
Hydro	1699.50	1752.50	1807.00	1807.00	1807.00	1807.00	1807.00	1807.00
Gas	0.00	135.00	174.00	174.00	174.00	174.00	174.00	174.00
Others	2.02	2.02	2.02	2.00	2.00	2.00	3.73	48.85
Total	1801.52	2117.52	2211.02	2239.44	2239.44	2239.44	2241.17	2286.29
INSTALLED CAPACITY BY OWNERSHIP (MW)								
State Sector	1789.52	1970.52	2025.02	2031.60	2031.60	2031.60	2031.60	2090.32
Private/Licencee	12.00	147.00	186.00	207.84	207.84	207.84	209.57	196.57
Total State & Private Sectors	1801.52	2117.52	2211.02	2239.44	2239.44	2239.44	2241.17	2286.89
Share in Central Sector Stations			804.00	804.00	804.00	804.00	804.00	1209.55
Total			3015.02	3043.44	3043.44	3043.44	3045.17	3496.44
CAPACITY ADDITION (MW)								
Thermal	20.00	128.00	0.00	28.44	0.00	0.00	0.00	0.00
Gas	0.00	135.00	39.00	0.00	0.00	0.00	0.00	0.00
Hydro	0.00	53.00	54.50	0.00	0.00	0.00	0.00	0.00
Others	0.00	0.00	0.00	0.00	0.00	0.00	1.73	45.12
Total	20.00	316.00	93.50	28.44	0.00	0.00	1.73	45.12
POWER SUPPLY POSITION								
Energy (Mus)	12313.00	12850.00	13564.00	13334.00	13585.00	12995.00	12691.00	13666.00
Availability	11114.00	11908.00	12670.00	12349.00	12651.00	12498.00	12540.00	13570.00
Shortage (%)	9.70	7.30	6.60	7.40	6.90	3.80	1.20	0.70
Peak (MW)	2136.00	2386.00	2456.00	2633.00	2803.00	2689.00	2451.00	2627.00
Peak Met	1889.00	2169.00	2331.00	2189.00	2347.00	2426.00	2420.00	2578.00
Shortage (%)	11.60	9.10	5.10	16.90	16.30	9.80	1.30	1.90

TAMILNADU POWER PROFILE

		1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
INSTALLED CAPACITY (MW)									
	Thermal	3275.66	3275.66	3275.66	3381.66	3631.66	3631.66	3631.66	3631.66
	Hydro	1965.15	1995.15	1995.15	1995.15	1995.15	1995.15	1995.15	2145.85
	Gas	70.00	70.00	462.00	567.50	661.50	761.50	831.50	919.30
	Others	787.70	787.70	787.70	832.30	925.60	990.30	1856.25	2721.83
	Total	6098.51	6128.51	6520.51	6776.61	7213.91	7378.61	8314.56	9418.64
INSTALLED CAPACITY BY OWNERSHIP (MW)									
	State Sector	5191.55	5221.55	5221.55	5221.55	5315.55	5415.55	5415.55	6616.70
	Private/Licencee	906.96	906.96	1298.96	1555.06	1898.36	1963.06	2899.01	2801.94
	Total State & Private Sectors	6098.51	6128.51	6520.51	6776.61	7213.91	7378.61	8314.56	9418.64
	Share in Central Sector Projects			1869.00	1969.00	2179.00	2389.00	2439.00	2912.20
	Total			8389.51	8745.61	9392.91	9767.61	10753.56	12330.84
CAPACITY ADDITION (MW)									
	Thermal	200.00	0.00	0.00	106.00	250.00	0.00	0.00	0.00
	Gas	0.00	0.00	392.00	105.50	94.00	100.00	70.00	87.80
	Others	0.00	0.00	0.00	44.60	93.30	64.70	865.95	865.58
	Hydro	7.50	30.00	0.00	0.00	0.00	0.00	0.00	150.70
	Total	207.50	30.00	392.00	256.10	437.30	164.70	935.95	1104.08
POWER SUPPLY POSITION									
Energy (Mus)	Requirement	37706.00	38873.00	42702.00	46232.00	46125.00	45665.00	47872.00	54183.00
	Availability	33268.00	35797.00	39462.00	42951.00	43346.00	45062.00	47570.00	53859.00
	Shortage (%)	11.80	7.90	7.60	7.10	6.00	1.40	0.60	0.60
Peak (MW)	Requirement	5950.00	6446.00	7131.00	7158.00	7448.00	7455.00	7647.00	9114.00
	Peak Met	5190.00	5640.00	6038.00	6218.00	7123.00	7228.00	7555.00	8334.00
	Shortage (%)	12.80	12.50	15.30	13.10	4.40	3.00	1.20	8.60

Installed capacity in Southern Region as on 31/12 /2006

Fuel Type		Central Sector	State Sector	Private Sector	Total
Hydro		0	10942.26	55.45	10997.71
Thermal	Coal	8090.00	7362.50	510.00	15962.50
	Gas	350.00	735.80	2500.50	3586.30
	Diesel	0	362.52	576.80	939.32
	Total	8440.00	8460.82	3587.30	20488.12
Nuclear		880.00	0	0	880.00
Renewable Energy Sources		0	1764.74	2468.75	4233.49
Total		9320.00	21167.82	6111.50	36599.32

2.0 PERFORMANCE OF SOUTHERN REGIONAL GRID DURING DECEMBER, 2006

2.1 ENTITLEMENT - VS - DRAWAL BY CONSTITUENTS IN SR

Sl. No.	State/U.T/ System	Entitlement (MUs)	Actual Drawal (MUs)	Total over (+) / under drawal (-) (MUs)
1	APTRANSCO	929.14	1128.56	199.42
2	KPTCL	741.56	843.97	102.41
3	KSEB	548.21	479.64	-68.57
4	TNEB	1327.19	1259.49	-67.70
5	PONDY	141.49	127.60	-13.89
6	GOA	61.35	52.88	-8.47

*SOURCE : SRLDC/POWERGRID

2.1(A) SHARE OF POWER FROM CENTRAL GENERATING STATIONS

State	Share of power from Central Generating Stations (MW)
ANDHRA PRADESH	2465.79
KARNATAKA	1255.45
KERALA	1209.55
TAMIL NADU	2912.20
NLC	100.17
PONDICHERRY	227.14
UNALLOCATED	1149.70
TOTAL	9320.00

2.2 INTER-REGIONAL EXCHANGE OF POWER FROM /TO SOUTHERN REGION DURING DECEMBER, 2006.

Export

Export to NR	82.75
Export to WR	208.97

Import

Import from ER	12.95
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2.3 FREQUENCY PROFILE

Maximum frequency : 50.08 Hz

Minimum frequency : 48.53 Hz

Average frequency : 49.24 Hz

2.4 FREQUENCY DISTRIBUTION IN %

Hz	<48.0	48.0-49.0	49.0-49.5	49.5-50.5	50.5-51.0	>51.0
% of time	0.00	10.40	78.06	11.54	0.00	0.00

2.5 POWER SUPPLY POSITION AND PEAK DEMAND/MET IN SOUTHERN REGION DURING NOVEMBER, 2006.

a. Power supply position

State/ U.T	NOVEMBER, 2006			APRIL,2006- NOVEMBER, 2006		
	Requirement (MU)	Availability (MU)	Short age (%)	Requirement (MU)	Availability (MU)	Short age (%)
A.P.	4,563	4,473	-2.0	38,991	38,072	-2.4
Karnataka	3,142	3,086	-1.8	25,467	25,100	-1.4
Kerala	1,231	1,207	-1.9	9,736	9,588	-1.5
T.N.	4,252	4,175	-1.8	40,709	40,181	-1.3
Pondichery	139	139	0.0	1,221	1,221	0.0
Lakshadweep	2	2	0.0	16	16	0.0
Total	13,327	13,080	-1.9	116,124	114,162	-1.7
All India	56,374	50,357	-10.7	450,325	412,539	-8.4

b. Peak Demand/Demand Met

State/ U.T	NOVEMBER, 2006			APRIL,2006-NOVEMBER,2006		
	Requirement (MW)	Availability (MW)	Short age (%)	Requirement (MW)	Availability (MW)	Shortage (%)
A.P.	7,554	7,340	-2.8	9,167	8,281	-9.7
Karnataka	5,210	4,942	-5.1	6,130	5,611	-8.5
Kerala	2,654	2,600	-2.0	2,672	2,602	-2.6
T.N.	7,752	7,596	-2.0	8,609	8,449	-1.9
Pondichery	244	244	0.0	265	265	0.0
Lakshadweep	6	6	0.0	6	6	0.0
Total	22,689	21,900	-3.5	25,165	23,520	-6.5
All India	97,946	82,715	-15.6	98,435	86,425	-12.2

3.

CAPACITY ADDITION IN SOUTHERN REGION**3.1 Generation capacity Addition during 2006-07**

SL.No.	Project	Unit No.	Capacity (MW)	Commissioning Schedule	Remarks
1.	Kaiga APP/ Karnataka	3	220	Mar.'07	
2.	Rayalaseema TPS-II	3	210	July'06	
		4	210	Oct.'06	
3.	Bellary TPP/ Karnataka	1	500	Dec.'06	
4.	Bhawani Kattalai Barrage I/Tamil Nadu	1	15	June'06	Commissioned
		2	15	July'06	Commissioned
5.	Priadarshni Jurala*/AP	1	39	Mar.'07	
6.	Kuttyadi Addl.*/Kerala	1	50	Feb.'07	
		2	50	Mar.'07	
7.	Gautami CCPP/AP	GT-1	145	July'06	
		GT-2	145	July'06	
		ST	174	Sept.'06	
8.	Konaseema CCPP/AP	GT-1	140	Apr.'06	
		GT-2	140	Apr.'06	
		ST	165	Aug.'06	
9.	Vemagiri CCPP/AP	ST	137	Apr.'06	Commissioned
10.	Valantharvi GTPP/Tamil Nadu	ST	14.80	Apr.'06	Commissioned
TOTAL			2369.80	-	
Generation Capacity Addition during 2006-07 (All India)					17766.72MW

*Capacity with best efforts

**3.2 CAPACITY ADDITION PROGRAMME IN
SOUTHERN REGION DURING X PLAN PERIOD**

Sl.no.	Project	Fuel	Capacity (MW)	Present Status
CENTRAL SECTOR				
1	Simhadri /NTPC	Coal	500.00	Commissioned
2	Ramagundam/NTPC	Coal	500.00	Commissioned
3	NLC Extn.I /NLC	Lignite	420.00	Commissioned
4	Kaiga NP / NPC	Nuclear	220.00	Under execution.
5	Kudankulam U - I	Nuclear	1000.00	Best efforts are being made to commissioned two units by March'2007
6	MAPPS Extn.	Nuclear	100.00	Commissioned
	Total Central Sector		2740.00	
STATE SECTOR				
7	Pykera Ultimate /T.N.	Hydro	150.00	Commissioned
8	Kuttalam CCPP / T.N.	Gas	100.00	Commissioned
9	Valuthur CCPP / T.N.	Gas	94.00	Commissioned
10	Bhawani Katlai / T.N.	Hydro	30.00	Commissioned
11	Srisalam LBH /A.P.	Hydro	450.00	Commissioned .
12	Jurala Priyadarshini / A.P.	Hydro	39.10	Under execution. E&M works critical.
13	Rayalaseema-II/A.P.	Coal	420.00	U-3 Boiler Hydraulic Test completed. U-4 Boiler drum lifted.
14	Kuttiyadi augmentation/Kerala	Hydro	100.00	Commissioned .
15	Almati Dam/Karnataka	Hydro	290.00	Commissioned .
16	Raichur Unit-7/Karnataka	Coal	210.00	Commissioned.
17	Bellary/Karnataka	Coal	500.00	Boiler hydraulic test completed.
18	Rangat bay/ A&N	Coal	6.00	Commissioned.
	Total State Sector		2389.10	
PRIVATE SECTOR				
19	Neyveli Zero / T.N.	Lignite	250.00	Commissioned.
20	Pedapuram / A.P.	Gas	78.00	Commissioned.
21	Vemagiri-I/ A.P.	Gas	370.00	Commissioned.
22	Gautami-I / A.P.	Gas	464.00	GT 1 & 2 & STG placed on foundation. Hydraulic test of steam generator completed.
23	Jegrupadu Extn./ A.P.	Gas	220.00	Commissioned.
24	Konaseema / A.P.	Gas	445.00	Commissioned.
25	Bamboo flat DG / A&N	DG	20.00	Commissioned.
26	Karuppur CCPP/ T.N.	Coal	119.80	Commissioned.
27	Valantharavai CCPP/ T.N.	Coal	52.80	Commissioned.
	Total Private Sector		2019.60	
	Grand Total		7148.70	

PROJECT SHEETS

ON

CENTRAL POWER PROJECTS

TO BE COMMISSIONED DURING

Xth PLAN PERIOD

4.1 GENERATION PROJECTS IN CENTRAL SECTOR

4.1.1 RAMAGUNDAM STAGE-III (NTPC)

Capacity	:	500MW
Project Cost	:	1818.46 Cr. (1998 PL)
Date of Investment Approval	:	08/2001
Commissioning Schedule	:	08/2005 (Actual August'2004)

Unit has been test synchronised on 31-8-04.

4.1.2 SIMHADRI SUPER THERMAL POWER PROJECT (NTPC)

Capacity	:	2x 500MW
Project Cost	:	Rs.3650.79 Cr.
Date of Investment Approval	:	07/1997
Commissioning Schedule	:	Unit-I 03/2002 (Actual 02/2002) Unit-II 12/2002 (Actual 08/2002)

Unit-I has been commissioned on 22.02.2002, in a record time of just 39 months. Unit-II has been commissioned in August'2002.

4.1.3 NLC TPS –I EXPANSION PROJECT (NLC)

Capacity	:	420MW
Project Cost	:	Rs.1590 Cr. Revised to Rs. 1423.47 Cr.
Date of Investment Approval	:	-
Commissioning Schedule	:	U-1 : 08/2002 U-2 : 07/2003.

Unit –1 has been synchronised in October, 2002. Unit-2 has been synchronised in July, 2003.

4.2

TRANSMISSION PROJECTS

4.2.1 400 KV D/C KAIGA-NARENDRA TL

Project Cost	:	Rs.75.99 Cr. Anticipated Rs.189.32 Cr.)
Date of Investment Approval	:	11/1999
Commissioning Schedule	:	03/2006. (Anticipated 07/2006)

This consists of the following components:

- a) **400 kV D/C Kaiga-Narendra T/L (220 CKm.)**
Commissioned.
- b) **400/220 kV S/S at Narendra (2x315 MVA)**
Commissioned.

4.2.2 400 KV D/C NEELMANGALA- MYSORE T/L

Project Cost	:	Rs.154.93 Cr.
Date of Investment Approval	:	08/ 2003
Commissioning Schedule	:	07/ 2006 Anticipated 04/2006

This line has following components :

- 1. 400 KV D/C Neelmangala-Mysore T/L (266 CKm)**
Commissioned.
- 2. 400/220 KV Mysore Sub-Station (2x315 MVA)**
Commissioned.
- 3. Neelmangala Sub-Station Extension**
Commissioned.

4.2.3

NEYVELI TS-II EXPANSION PROJECT

Project Cost	:	Rs.691.83 Cr.
Date of Investment Approval	:	01/2005
Commissioning Schedule	:	12/2007

This Transmission system has following components:

(a) Transmission Lines

- (i) **Neyveli TS-II (Expansion) switchyard-Neyveli TS-II (Existing) (6 CKm)**
Survey & Engineering is in progress for 18 locations.
- (ii) **Neyveli TS-II – Pugalur 400 kV D/C line (284 Ckm)**
Out of 591 towers, foundations for 199 towers have been completed.129 towers have been erected.
- (iii) **Pugalur – Madurai 400 kV D/C line (246 Ckm)**
Out of 363 towers, foundation for 93 towers have been completed. 32 towers have been erected
- (iv) **Udumalpet – Arasur 400 kV D/C line (132 Ckm)**
Out of 189 towers, foundation for 33 towers have been completed.
- (v) **LILO of Neyveli – Sriperumbudur 400 kV S/C line at Pondicherry (30 Ckm)**
Survey & Engineering is in progress.
- (v) **LILO of Ramagundam-Khammam 400 kV S/c line at Warangal (36 Ckm)**
Survey & Engineering is in progress.

(b) Substations

- i) **400/220 kV Pugalur substation (2x315 MVA)**
Engineering is in progress.
- ii) **400/220 kV Warangal substation (2x315 MVA)**
Engineering is in progress.
- iii) **400/220 kV Arasur substation (2x315 MVA)**
Engineering is in progress.
- iv) **400/220 kV Pondicherry substation (2x315 MVA)**
Engineering is in progress.
- v) **400/220 kV Madurai substation (Extension)**
Engineering is in progress.
- vi) **400/220 kV Udumalpet substation (Extension)**
Engineering is in progress.

4.2.4 KAIGA 3 &4 TRANSMISSION SYSTEM

Project Cost	:	Rs. 596.45Cr.
Date of Investment Approval	:	03/2005
Commissioning Schedule	:	12/2007

This Transmission system has following components:

a) Transmission Lines

i) 400 kV D/C Narendra-Davangere line (300 Ckm)

Out of 412 towers, foundation for 158 towers have been completed. 84 towers have been erected. 7 CKm stringing has been completed.

ii) 400 kV D/C Mysore – Kozhikode line (384 Ckm).

Out of 617 towers, foundations for 108 towers have been completed. 56 towers have been erected.

iii) LILO of existing 400 kV S/C kolar – Sriperumbudur at new 400/220 kV substation at Malekottaiyur (80 Ckm).

Survey is in progress for 124 locations. 5 foundations have been completed.

b) Substations:

i) 400/220 kV substation at Malakottaiyur (2x315 MVA).

ii) 400/220 kV substation at Kozhikode (2x315 MVA).

iii) Extension of Hiriyyur 400/220 kV substation.

iv) Extension of Vijayawada 400/220 kV substation.

v) Extension of Narendra 400/220 kV substation.

vi) Extension of Davangere (KPTCL) 400/220 kV substation

vii) Extension of Mysore 400/220 kV substation.

Packages have been awarded.

4.2.5 KUDANKULAM TRANSMISSION SYSTEM

Project Cost : Rs. 1779.29Cr.

Date of Investment : 05/2005
Approval

Commissioning : 09/2008
Schedule

This Transmission system has following components:

a) Transmission lines

- i) **400 kV D/C Kudankulam – Tirunelveli Quad line –I (144 Ckm)**
Out of 199 towers, foundations for 183 towers have been completed. 97 towers have been erected.
- ii) **400 kV D/C Kudankulam-Tirunelveli quad line-II (160 Ckm)**
Out of 213 towers, foundation for 99 towers have been completed. 47 towers have been erected.
- iii) **400 kV D/C Tirunelveli-Udumalpet line (524 Ckm)**
Out of 738 towers, foundations for 117 towers have been completed. 49 towers have been erected.
- iv) **400 kV multi ckt. Tirunelveli-Edamon Line (161 Ckm)
(2ckt. Of quad and 2 ckts of twin)**
Out of 230 towers, foundations for 26 towers have been completed
- v) **400 kV D/C Edamon-Muvattupuzha -Quad line (290 Ckm)**
Under tendering.
- vi) **400 kV D/C Muvattupuzha-North Trichur Quadline (180 Ckm)**
Under tendering.
- vii) **LILO of 400 kV D/C Madurai-Trivendrum (220 Ckm)
line at Tirunelveli**
Out of 300 towers, foundation for 201 towers have been completed. 136 towers have been erected. 18 CKm stringing has been completed.

b) Substations:

- i) **Establishment of new 400/220 kV substation at Tirunelveli (2x315 MVA)**
Civil works are under progress.
- ii) **Establishment of new 400/220 kV substation at Muvattupuzha (2x315 MVA)**
Packages have been awarded.
- iii) **Extension of North-Trichur 400/220 kV substation.**
Packages have been awarded.
- iv) **Extension of Udumalpet 400/220 kV substation**
Packages have been awarded.
- v) **Extension of Trivandrum 400/220 kV substation.**
Packages have been awarded.

4.2.6

SYSTEM STRENGTHENING –III IN SOUTHERN REGION

Project Cost	:	Rs.284.79 Cr.
Date of Investment Approval	:	10/2004
Commissioning Schedule	:	04/2007

This system strengthening scheme has following components:

(a) Transmission Lines

- (i) 400 kV D/C Gooty – Raichur T/L (quad conductor) (294 Ckm).**
Out of 393 towers, foundations for 350 towers have been completed. 238 towers have been erected. 63 CKm stringing has been completed.
- (ii) 400 kV D/C Neelamangala - Somanahally T/L (84 Ckm).**
Line has been commissioned.

(b) Substations (Extension)

- (i) Somanahally (POWERGRID).**
- (ii) Gooty (POWERGRID).**
- (iii) Neelamangala (KPTCL).**
- (iv) Raichur (KPTCL).**

Equipment erection is in progress.

4.2.7

SYSTEM STRENGTHENING –IV IN SOUTHERN REGION

Project Cost	:	Rs.101.94 Cr.
Date of Investment Approval	:	02/2004
Commissioning Schedule	:	02/2007 (Actual 05/2006)

This Transmission system has following components:

(1) LILO of Nagarjunasagar – Raichur at Mahaboobnagar (2 CKm)

Commissioned.

(2) LILO of both ckt. Of Nellore – Sriperambudurat Alemathi (164 CKm)

All commissioned.

(3) Extension of existing 400 kV S/S at Mahaboobnagar and Alamathi

Commissioned.

4.2.8

SYSTEM STRENGTHENING –V IN SOUTHERN REGION

Project Cost	:	Rs.92.12 Cr.
Date of Investment Approval	:	07/2004
Commissioning Schedule	:	06/2007

This Transmission system has following components:

- (1) **Extension of 400/220 Kv sub-station at Cuddapah (1x315 MVA)**
Equipment erection is in progress.
- (2) **Extension of 400/220 Kv sub-station at Gooty (1x315 MVA)**
Equipment erection is in progress
- (3) **Extension of 400/220 Kv sub-station at Khammam (1x315 MVA)**
Re-tendered. Packages have been awarded. Engineering is in progress.
- (4) **Extension of 400/220 Kv sub-station at Munerabad (1x315 MVA)**
Equipment erection is in progress
- (5) **Extension of 400/220 Kv sub-station at Gazuwaka (1x315 MVA)**
Re-tendered. Packages have been awarded. Engineering is in progress.
- (6) **Extension of 400/220 Kv sub-station at Kolar (3x167 MVA)**
Equipment erection is in progress
- (7) **Extension of 400/220 Kv sub-station at Nellor (1x80 MVAR)**
Equipment erection is in progress
- (8) **Extension of 400/220 Kv sub-station at Somanahally**
Equipment erection is in progress

4.2.9

SYSTEM STRENGTHENING –VI IN SOUTHERN REGION

Project Cost	:	Rs.113.73 Cr.
Date of Investment Approval	:	03/2005
Commissioning Schedule	:	09/2007

This Transmission system has following components:

- (1) **LILO of both Ckt of Gazuwaka – Vijayawada 400 Kv D/C line at Vemagiri (148 CKm)**
Out of 242 locations, foundations for 70 towers have been completed. 21 towers have been erected.
- (2) **Extension of sub-stations at Gazuwaka and Vijayawada**
Engineering is in progress.

4.2.10 SYSTEM STRENGTHENING –VII IN SOUTHERN REGION

Project Cost	:	Rs.279.30 Cr.
Date of Investment Approval	:	04/2005
Commissioning Schedule	:	03/2008

This Transmission system has following components:

Transmission lines

- (1) LILO of 1 Ckt of Madurai (POWERGRID)-Trichi (POWERGRID) D/C line at Karaikudi (156 CKm).
- (2) LILO of 1 Ckt of existing Talguppa (KPTCL)-Neelamangla (KPTCL) line at Hassan (100 CKm).

Packages have been awarded. Engineering & survey is in progress.

Sub-Stations

- (1) 400/220 Kv Karaikudi S/S (2x315 MVA)
- (2) 400/220 Kv Hassan S/S (2x315 MVA)

Packages have been awarded. Engineering & survey is in progress.

4.2.11 RAMAGUNDAM-III TRANSMISSION SYSTEM

Project Cost	:	Rs.390.12 Cr.
Date of Investment Approval	:	12/2001
Commissioning Schedule	:	08/2005. Actual 03/2005

Ramagundam –III transmission system has following components:

- 1. 400 kV D/C Ramagundam-Hyderabad TL (402 CKm)**
Commissioned.
- 2. 400 kV S/C Hyderabad- Kurnool- Gooty TL (307 CKm)**
Commissioned.
- 3. 400 kV S/C Gooty-Neelmangla TL (253 CKm)**
Line completed and test charged on 28.3.05.
- 4. 400 kV S/C Khammam- Nagajunasagar TL (145 CKm)**
Line commissioned on 27/02/2004.
- 5. Extension of existing 400/220 kV substation at Hyderabad**
Commissioned.
- 6. Extension of existing 400/220 kV substation at Kurnool (APTRANSCO)**
Commissioned.
- 7. Extension of existing 400/220 kV substation at Gooty**
Commissioned
- 8. Extension of existing 400/220 kV substation at Neelmangala**
Commissioned.
- 9. Extension of existing 400/220 kV substation at Khammam**
Commissioned.
- 10. Extension of existing 400/220 kV substation at Nagajunasagar**
Commissioned.

4.2.12 EAST-SOUTH INTERCONNECTOR-II PROJECT (TALCHER-II TRANSMISSION SYSTEM)

Project Cost	:	Rs.3865.61 Cr.
Date of Investment Approval	:	01/ 2000
Commissioning Schedule	:	06/ 2003

Talcher-II Transmission system has following components:

- 1. HVDC Transmission lines (1367 CKm)**
 - 1.1 Talcher- Sompeta TL (294 CKm)**
 - 1.2 Sompeta-Kotanandur TL (297 CKm)**
 - 1.3 Kotanandur-Krishna River Crossing (272 CKm)**
 - 1.4 Krishna River Crossing- Porumommila (233 CKm)**
 - 1.5 Porumommila- Kolar (271 CKm)**

All the above HVDC Transmission lines have been commissioned.

- 2. A/C Transmission lines (559.5 CKm)**
 - 2.1 400 kV D/C Kolar-Hoody TL (102 CKm)**

Line commissioned on 16.10.2002.
 - 2.2 400 kV S/C Kolar-Hosur-Palakkoddu TL (181 CKm)**

Line commissioned on 8/3/2003.
 - 2.3 400kV S/C Kolar-Arakkonam TL (161 CKm)**

Line commissioned on 22.10.2002.
 - 2.4 400 kV S/C Palakkoddu- Salem TL (84 CKm)**

Line commissioned on 16.10.2002.

- 2.5 400 kV S/C Salem –Udumalpet TL (138 CKm)**
Commissioned.
- 2.6 400 kV S/C Arakkonam-Madras TL (45 CKm)**
Line commissioned on 16.10.2002.
- 2.7 LILO of 400 kV D/C Cuddapah-Somanhalli TL at Kolar (29.5 CKm)**
Commissioned on 23.8.2002.
- 3. HVDC Converter and A/C Substation.**
 - 3.1 2x500 MW HVDC Converter Station at Talcher.**
Commissioned.
 - 3.2 2x500 MW HVDC Converter Station at Kolar.**
Commissioned.
 - 3.3 400/220 kV substation at Kolar (4x167 MVA).**
Substation has been charged on 13.3.2003.
 - 3.4 400/220 kV substation at Hosur (2x315 MVA)**
Substation has been charged on 13.3.2003.
 - 3.5 Bay Extension at existing Salem, Udumalpet, Hoody and Madras substations.**
Bay extensions have been commissioned.

4.2.13

MADURAI- THIRUVANATHAPURAM TRANSMISSION SYSTEM

Project Cost	:	Rs.195.97 Cr. (Revised to Rs 247.69 Cr.)
Date of Investment Approval	:	11/2000
Commissioning Schedule	:	09/2004. (Actual 07/2005)

Madurai –Thiruvanathapuram transmission system has the following components:

- 1. 400 kV D/C Madurai –Thiruvanathapuram TL (432 CKm)**
Commissioned on 26/7/05.
- 2. 400/220 kV substation at Thiruvanathapuram (2x315 MVA)**
Commissioned on 26/7/05.
- 3. Extension of existing 400/220kV substation at Madurai**
Commissioned on 26/7/05.

4.2.14**SYSTEM STRENGTHENING – I IN
SOUTHERN REGION**

Project Cost	:	Rs.396.28 Cr.
Date of Investment Approval	:	02/2001
Commissioning Schedule	:	02/2003.

The system strengthening in SR consists of the following components :

- 1. 400 kV D/C Vijayawada-Upallpadu TL (328 CKm)**
Line synchronised on 3/2/2003.
- 2. 400 kV D/C Upallpadu- NelloreTL (358 CKm)**
Line synchronised on 3/2/2003.
- 3. 400 kV D/C Nellore-Sriperumbudur TL (378 CKm)**
Line has been completed and Test charged.
- 4. 400 kV substation at Nellore**
Line has been completed and Test charged.
- 5. Extension of 400/220 kV substation at Vijayawada and Sriperumbudur**
Completed and Test charged.

4.2.15 SYSTEM STRENGTHENING –II IN SOUTHERN REGION

Project Cost	:	Rs. 77.61 Cr.
Date of Investment Approval	:	10/2001
Commissioning Schedule	:	04/2004.

The system strengthening-II in SR consists of the following components :

- 1. LILO of 400 KV D/C Davangere- Hoody TL at Hirriyur (5 CKm)**
Commissioned.
- 2. 400/220 KV Sub-station at Hirriyur (1x315 MVA)**
Sub-station has been commissioned on 28.01.2004.

4.2.16 GAJUWAKA B/B HVDC AUGMENTATION (500 MW)

Project Cost	:	Rs.769.25 Cr.
Date of Investment Approval	:	01/2002
Commissioning Schedule	:	01/2005. Completed on 26/2/2005.

This project has following components:

1. **400 kV D/C Gajuwaka-Sitanagaram TL (362 CKm)**
Line commissioned on 26/2/2005.
2. **400 kV D/C Sitanagaram- Vijaywada TL (270 CKm)**
Line commissioned on 26.2.05.
3. **500 MW HVDC Module at Gajuwaka**
Commissioned.
4. **Extension of 400/220 kV substation at Vijaywada**
Commissioned.
5. **Extension of 400/220 kV substation at Gajuwaka**
Commissioned.

LIST OF PROJECTS FOR LIKELY BENEFITS DURING 11TH PLAN (TENTATIVE)

Sl.No.	PLANT NAME	STATE	AGENCY	SECTOR	ULTIMATE CAPACITY (MW)	TYPE	BENEFITS 11TH PLAN (2007-12)	LIKELY YEAR OF BENEFIT
SOUTHERN REGION								
CENTRAL SECTOR								
1	ENNORE-JV	TN	NTPC+TNEB	C	1000	COASTAL	1000	2010-12
2	TUTICORIN JV	TN	NLC+TNEB	C	1000	COASTAL	1000	2010-12
3	NEYVELI - II	TN	NLC	C	500	PH	500	2008-10
4	KAYAMKULAM	KERL	NTPC	C	1950	LNG	1950	
SUB-TOTAL(THERMAL CENTRE)					4450		4450	
5	KUDANKULAM U 1,2	TN	NPC	C	2000	LWR	2000	2007-09
6	PFBR(Kalapakkam)	TN	NPC	C	500	FBR	500	2011-12
7	KAIGA*	KAR	NPC	C	440	PHWR	220	2007-08
SUB-TOTAL(NUCLEAR CENTRE)					2940		2720	
TOTAL CENTRAL SECTOR SOUTHERN					7390		7170	
STATE SECTOR								
1	JURALA PRIYADARSHNI*	AP	APGENCO	S	234	STO	195	2007-08
2	NAGARJUNA SAGAR TR	AP	APGENCO	S	50	STO	50	2009-10
3	LOWER JURALA	AP	APGENCO	S	240	STO	240	2011-12
4	VARAHI EXTN.	KAR	KPCL	S	230	ROR	230	2008-09
5	GUNDIA	KAR	KPCL	S	300	ROR	300	2011-12
6	ADIRAPALLY	KERL	KSEB	S	163	STO	163	2009-10
7	MANKULAM	KERL	KSEB	S	40	STO	40	2010-11
8	PALLIVASAL	KERL	KSEB	S	60	ROR	60	2009-10
9	THOTTIAR	KERL	KSEB	S	40	ROR	40	2011-12
10	BHAWANI BARRAGE II & III	TN	TNEB	S	60	ROR	60	2009-10
SUB-TOTAL(HYDRO STATE)					1417		1378	
11	BHOPALAPALLY	AP	APGENCO	S	500	LC	500	2008-09
12	VIJAYWADA TPP	AP	APGENCO	S	500	LC	500	2008-09
13	KOTHAGUDEM ST-V	AP	APGENCO	S	500	PH	500	2011-12
14	KRISHNAPATNAM	AP	APGENCO	S	1600	COASTAL	800	2011-12
15	RAICHUR U 8	KAR	KPCL	S	210	LC	210	2008-09
16	BELLARY EXT	KAR	KPCL	S	500	LC	500	2008-09
SUB-TOTAL(THERMAL STATE)					3810		3010	
TOTAL STATE SECTOR SOUTHERN					5227		4388	
PRIVATE SECTOR								
1	NAGARJUNA TPP	KAR	NPCL-IPP	P	1015	COASTAL	1015	2008-09
2	ULTRA MEGA PROJECT IN AP(4000 MW)	AP	IPP	P	4000	COASTAL	800	2011-12
SUB-TOTAL(THERMAL PRIVATE)					5015		1815	
TOTAL PRIVATE SECTOR SOUTHERN								
TOTAL SOUTHERN REGION					17632		13373	
TOTAL ALL INDIA					88720		62475	

6.0 STATEMENT OF OUTSTANDING DUES



6.1 STATEMENT OF OUTSTANDING DUES INCLUDING SURCHARGE (AS ON 31.12.2006)

(Rs. In Crore)

CPSU ⇨	NTPC	POWERGRID	PFC	REC	TOTAL
SEB / UT					
A.P.	0.00	0.00	0.03	0.00	0.03
KARNATAKA	0.00	0.00	23.69	0.00	23.69
KERALA	0.00	0.00	0.00	0.00	0.00
TAMIL NADU	0.00	0.00	0.00	0.00	0.00
PONDYCHERRY	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	23.72	0.00	23.72

**6.2 STATEMENT OF OUTSTANDING DUES EXCLUDING SURCHARGE
(AS ON 31.12.2006)**

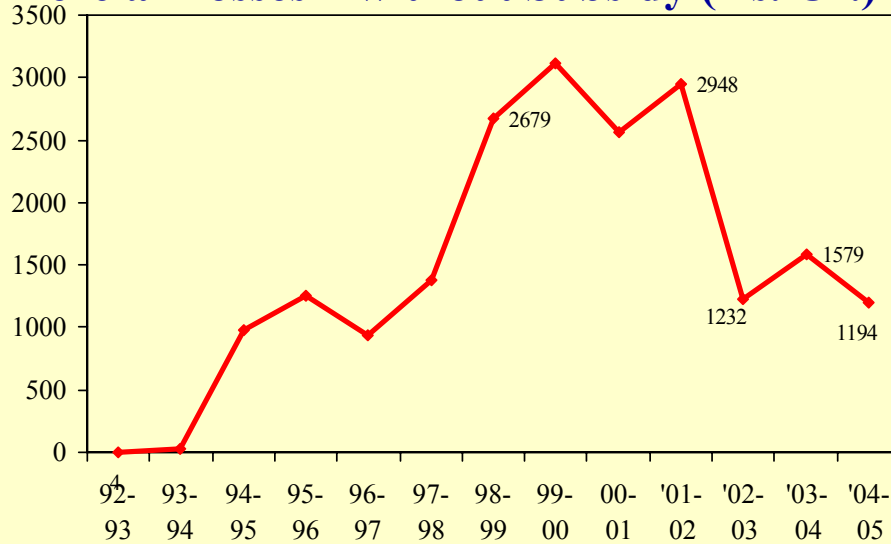
(Rs. In Crore)

CPSU 	NTPC	POWERGRID	PFC	REC	TOTAL
SEB / UT 					
A.P.	0.00	0.00	0.03	0.00	0.03
KARNATAKA	0.00	0.00	23.69	0.00	23.69
KERALA	0.00	0.00	0.00	0.00	0.00
TAMIL NADU	0.00	0.00	0.00	0.00	0.00
PONDYCHERRY	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	23.72	0.00	23.72

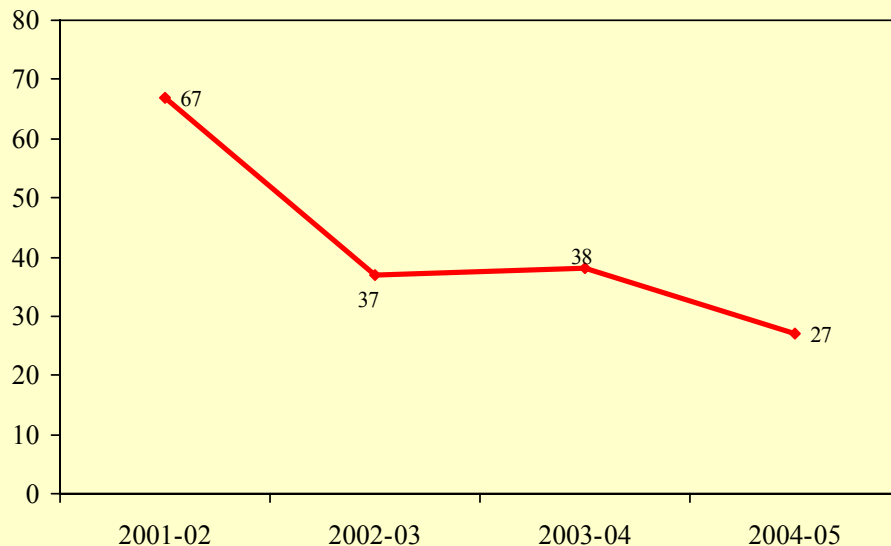
* Source CPSUs

Andhra Pradesh - Power Sector Profile

Commercial Losses – without Subsidy (Rs. Cr.)



Gap between Average Cost of Supply and Average Revenue Realised (paise/kWh)



➤ Unbundling 1999

➤ Constitution of SERC 1999

➤ No. of Tariff Orders 7

➤ Rating

Jan' 04 56.75

Mar'05 57.03

June'06 55.81

➤ Ranking

Jan' 04 2

Mar'05 1

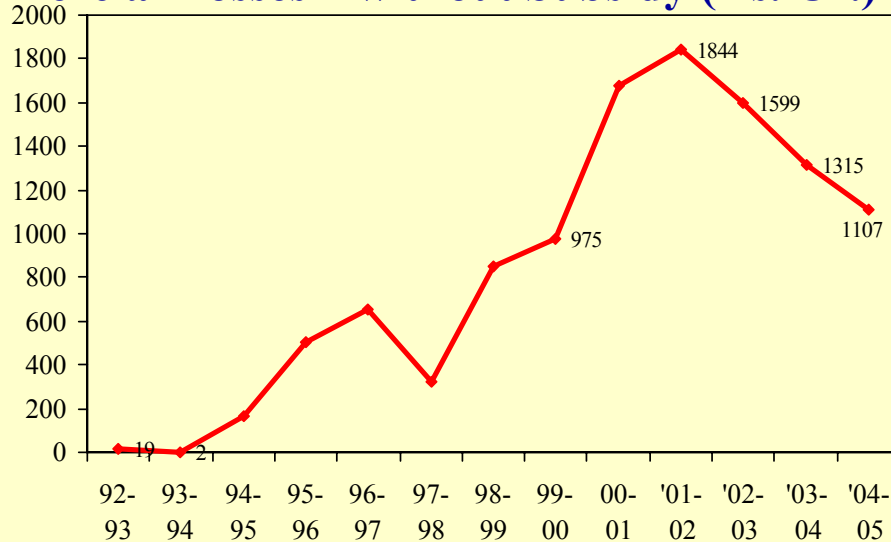
June'06 1

➤ 94% feeder metering.

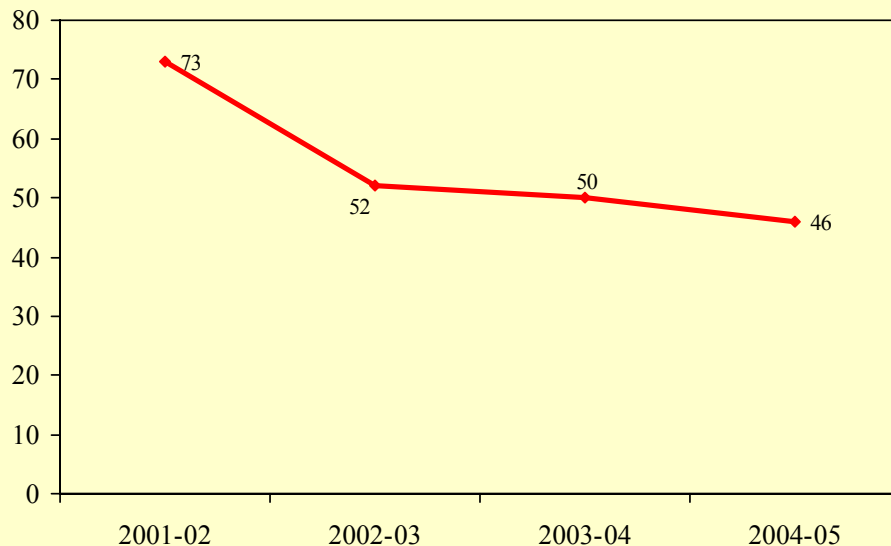
➤ 96% consumer metering.'

Karnataka- Power Sector Profile

Commercial Losses – without Subsidy (Rs. Cr.)



Gap between Average Cost of Supply and Average Revenue Realised (paise/kWh)



➤ Unbundling 1999

➤ Constitution of SERC 1999

➤ No. of Tariff Orders 5

➤ Rating

Jan' 04 51.25

Mar'05 51.46

June'06 46.92

➤ Ranking

Jan' 04 3

Mar'05 4

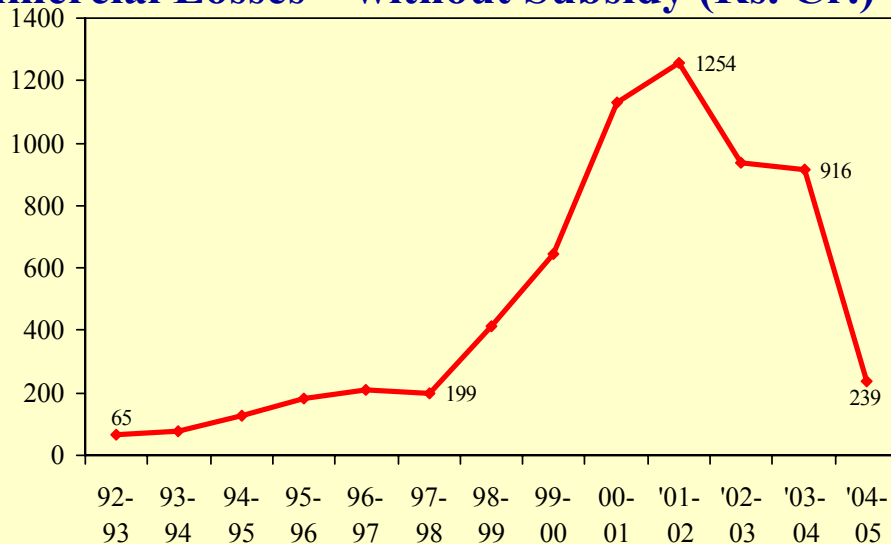
June'06 4

➤ 100% feeder metering.

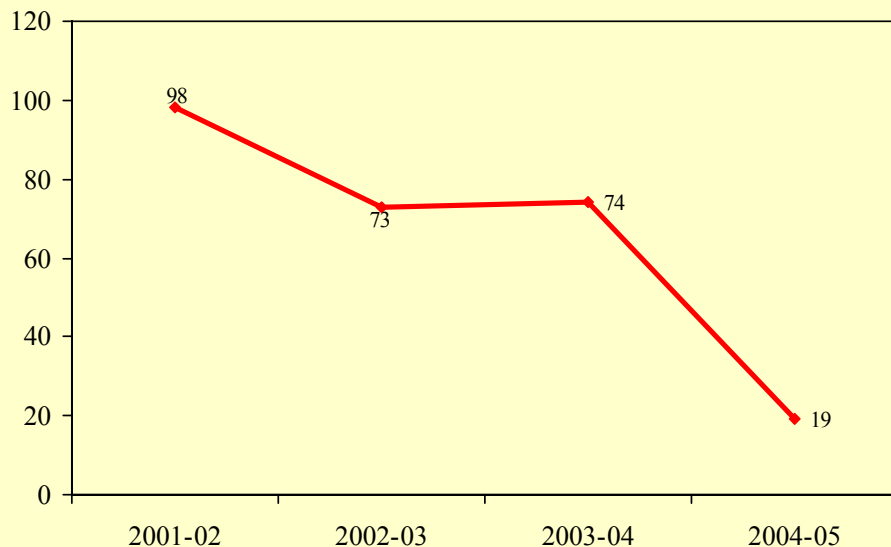
➤ 82% consumer metering.'

Kerala- Power Sector Profile

Commercial Losses – without Subsidy (Rs. Cr.)



Gap between Average Cost of Supply and Average Revenue Realised (paise/kWh)



➤ Unbundling Extn. 12/2006

➤ Constitution of SERC 2002

➤ No. of Tariff Orders 3

➤ Rating

Jan' 04 34.25

Mar'05 31.48

June'06 31.63

➤ Ranking

Jan' 04 15

Mar'05 16

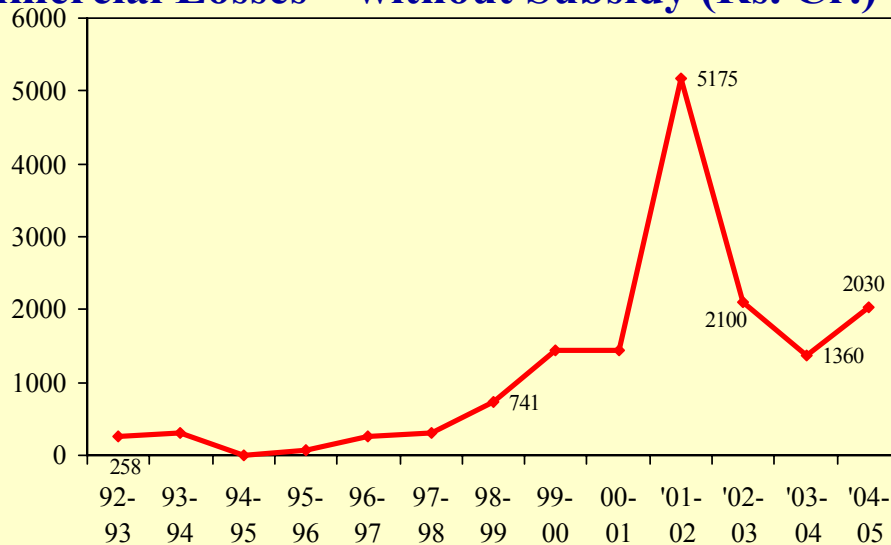
June'06 9

➤ 100% feeder metering.

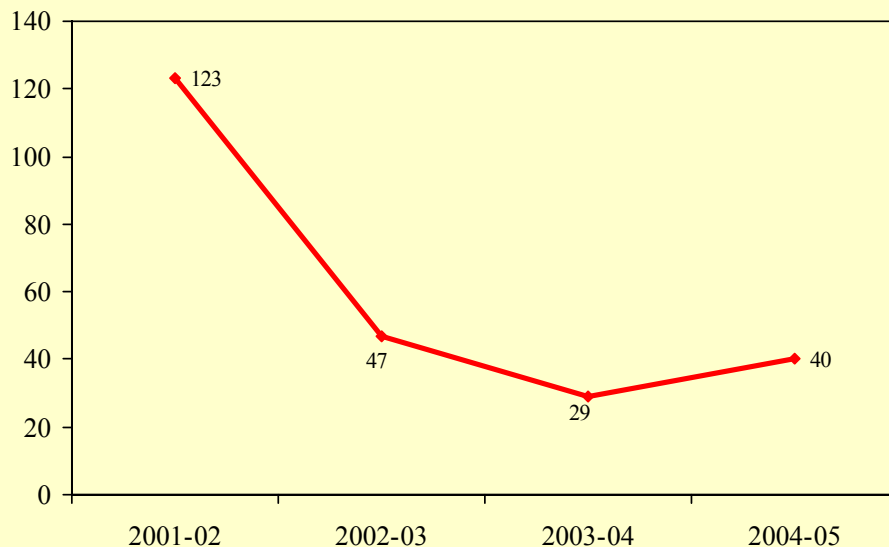
➤ 100% consumer metering.`

Tamil Nadu - Power Sector Profile

Commercial Losses – without Subsidy (Rs. Cr.)



Gap between Average Cost of Supply and Average Revenue Realised (paise/kWh)



➤ Unbundling Extn. 12/2006

➤ Constitution of SERC 1999

➤ No. of Tariff Orders 1

➤ Rating

Jan' 04 39.63

Mar'05 50.94

June'06 29.72

➤ Ranking

Jan' 04 12

Mar'05 5

June'06 10

➤ 100% feeder metering.

➤ 87% consumer metering.'