

8. ENERGY

Power is the most critical infrastructure for triggering all round socio-economic development of the State. A reform-oriented strategy is envisaged for power development during the Tenth Plan under which focus is placed for the improvement of financial viability of the State Electricity Board and providing reliable and quality service to consumers. Thus the thrust is on energy security and greater investment thrust on transmission and distribution. The demand for power is increasing at a faster pace contributed both by increase in the per capita income and changing life styles of the population. The State is keen on expanding the power generating capacity adequately to meet the increasing demand and also to reduce the deficit. An outlay of Rs.8000 crores accounting for 20 per cent of the State's Tenth Plan outlay is earmarked for power development.

8.1. Overall Performance, 2002-03:

There was moderate gains during 2002-03 both in building installed power generating capacities (4.3%) and also on the gross power availability (5.7%), despite a set back in the hydel generation. To meet the increasing demand, the Tamil Nadu Electricity Board resorted to higher level of purchases during the year and ensured unrestricted supply to all the categories of consumers. The per capita consumption of power has increased from 567 units in 2001-02 to 586 units in 2002-03.

Table - 1 : Power Sector - A Profile

Details	2000-01	2001-02	2002-03
I. Installed Capacity (MW)	7513.4	7924.7	8268.8
(i) State's own	5213.1	5213.1	5308.1
(ii) Central Sector	1905.0	1913.0	1903.0
(iii) IPPs	301.7	729.1	988.2
(iv) Captive Power	93.6	69.5	69.5
II. Power Generation (mu)	25147	25562	24929
III. Power Purchases (mu)	16617	18358	21263
IV. Gross Power Availability (mu)	41764	43920	46414
V. Total Consumption within the State (mu)	33418	35202	36347
VI. Per capita Consumption (units)	510	567	586
VII. No. of Consumers (lakhs)	145.73	153.43	160.16
VIII. Peak Demand (MW)	6290	6687	6957
IX. Line loss (%)	16.50	16.25	18.0 (P)
X. Auxiliary Consumption (mu)	1672	1791	1878

P - Provisional.

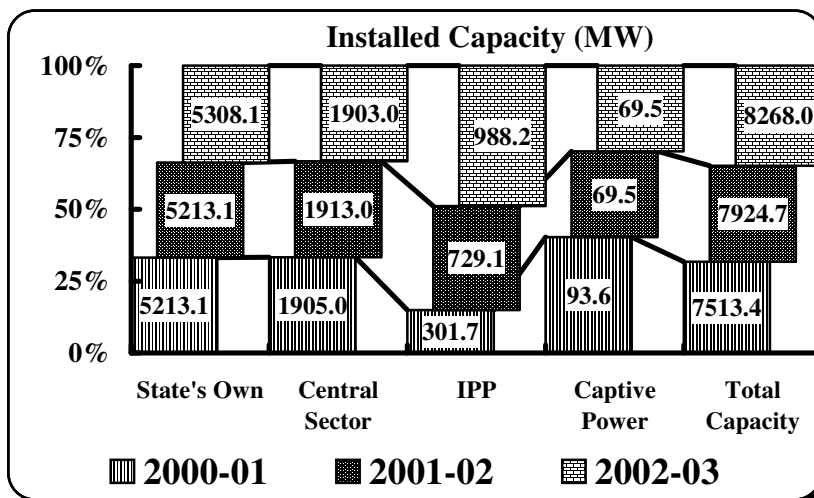
Source: Tamil Nadu Electricity Board, Chennai.

Towards improving the financial health of the Electricity Board the tariff was restructured for various category of consumers. Reintroduction of tariff for agriculture

consumption and for the supply for huts are the major initiatives taken during the year.

8.1.1. Installed Capacity:

The total installed capacity at the command of TNEB had increased from 7924.7 MW in 2001-02 to 8268.8 MW in 2002-03, by 4.3 per cent. This increase, over and above that recorded in 2001-02 (5.5%) may be treated as good, as expansion of capacities did not take place as anticipated during 1990s due to inadequate private sector participation in power generation. In absolute terms, an additional capacity to the tune of 344.1 MW were created during 2002-03, of which about 75 per cent emanated from non-



TNEB sources like IPPs. There was a minor withdrawals of capacity (10 MW) from the Central sector projects like Neyveli and NTPC. In the capacity additions of State's own projects, an increase of 1.8 per cent was witnessed during the year which accounts for 28 per cent to the overall additions. Looking at the source-wise mix (State's own : Central Sector : IPP : Captive Sets) of installed capacity a shift in favour of IPP was visible (i.e.) from 66:24:9:1 in 2001-02 to 64:23:12:1 in 2002-03.

Table - 2
Installed Capacity : At the Command of TNEB (MW)

Source	2000-01	2001-02	2002-03
State's own	5213.1 (69.4)	5213.1 (65.8)	5308.1 (64.2)
Central Sector	1905.0 (25.4)	1913.0 (24.1)	1903.0 (23.0)
IPPs	301.7 (4.0)	729.1 (9.2)	988.2 (12.0)
Capacity Power	93.6 (1.2)	69.5 (0.9)	69.5 (0.8)
Total capacity	7513.4 (100.0)	7924.7 (100.0)	8268.8 (100.0)

Note: Figures within brackets indicate percentage to total.

8.1.1.1. State's Own Capacity:

The installed capacity of the State's own projects which was at 5213.13 MW in 2000-01 and 2001-02 had moved up to 5308.13 MW in 2002-03. The only addition effected was in respect of the gas turbines with 95 MW at Valuthur commissioned during March 2003. The hydro, thermal, gas and wind capacity mix during 2001-02 at 38:57:4:1 was slightly altered to 37:56:6:1 in 2002-03.

The capacity additions at hydel sources had almost reached saturation. Even the mini and micro sources have been tapped. This saturation level combined with the absence of any major coal based thermal stations in the pipe line had pushed the State to depend on sources like gas and wind. Here again, the major control of windmills by private sector is one other factor that needs to be taken note of.

The thermal capacity has been stagnating over a fairly long period. High cost of establishing thermal plants, long gestation period and non-availability of quality coal in the State are the causative factors.

Table - 3
Installed Capacity : State's Own (MW)

Sources	2000-01	2001-02	2002-03
i. Hydro	1995.9	1995.9	1995.9
ii. Thermal	2970.0	2970.0	2970.0
iii. Gas	227.88	227.88	322.88
iv. Wind	19.35	19.35	19.35
Total	5213.13	5213.13	5308.13

8.1.1.2. Share from the Central Sector Projects:

The Central sector projects situated in the State / neighbouring States contribute a significant proportion to the State grid. Likewise Neyveli I & II extend about 45 per cent, MAPP and Kaiga atomic 75 per cent and 54 per cent respectively and NTPC 22 per cent to the Tamil Nadu grid. Of the five projects, Kaiga atomic power station commissioned in 2000-01 has a total capacity of 440 MW and its share for the State is expanding. From 105 MW in 2000-01, its contribution increased to 113 MW and 237 MW in the subsequent years. In Neyveli II, MAPP and NTPC the capacities shared by the State were reduced marginally due to administrative reasons. These reductions camouflage the additions made at the Kaiga end and resulted in overall reduction of 10 MW (i.e.) from 1913 MW in 2001-02 to 1903 MW in 2002-03.

Table - 4
Installed Capacity : Central Sector(MW)

Project	Total Capacity (As on March 2003)	Share to the State Grid		
		2000-01	2001-02	2002-03
1. Neyveli TS I	600	500	500	500
2. Neyveli TS II	1470	521	521	441
3. MAPP	340	259	259	255
4. NTPC	2100	520	520	470
5. Kaiga	440	105	113	237
Total	4950	1905	1913	1903

8.1.1.3. Installed Capacity : Non-Government Sources:

Private sector participation was encouraged in power development in a significant way since 1991. The capacity additions by the Independent Power Projects (IPPs) have been rapidly increasing during the recent past. The capacity creation under IPPs which stood at 301.7 MW in 2000-01 has more than doubled in 2001-02 and had almost touched 1000 MW mark by 2002-03. Details of capacity additions at the IPP end in the last three years are as follows:

Table - 5 : Capacity Additions

1999-2000	2000-01	2001-02	2002-03
i. Basin Bridge DEPP-196 MW	i. Samalpathi DEPP - 105.66 MW	i. Pillaiperumal Nallur GTPP-321.45 MW ii. Samayanallur DEPP - 106.0 MW	i. Neyveli Zero Base Power Project - 250 MW

8.1.2. Power Generation:

Total power generation by the State's own projects witnessed a modest decline during 2002-03. The total generation which was 25562 mu in 2001-02 decreased to 24929 mu during 2002-03, by 2.5 per cent. This is mainly due to the set back in the hydel generation. The severe drought and the consequent depletion in the storage levels of reservoirs affected the hydel generation significantly (37.4%). The increase in the generation by gas turbines and thermal power stations could not overcome the decrease in generation by hydel sources. It may be noted that thermal source has become the most reliable and the dominant source contributing about 85 per cent of the total power generated in the State.

Table - 6 : Power Generation : Source wise(mu)

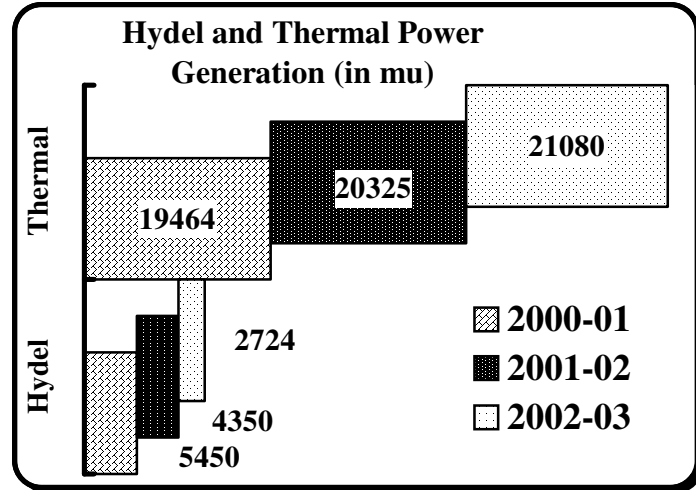
Source	2000-01	2001-02	2002-03
Hydel	5450 (22.6)	4350 (-)20.2	2724 (-)37.4
Thermal	19464 (3.2)	20325 (4.4)	21080 (3.7)
Gas	215 (-)0.9	870 (304.7)	1107 (27.2)
Wind	18 (-)33.3	17 (-)5.6	18 (5.9)
Total Generation	25147 (6.8)	25562 (1.7)	24929 (-)2.5

Figures in bracket indicates percentage change over the previous year.

Hydel generation suffered severely for the second consecutive year in 2002-03. All the hydel power stations except three viz. Kadamparai, Sholayar I and II, out of the total 29, had faired poorly. The overall PLF of the hydel projects also fell sharply during 2002-03 to 16 per cent from 25 per cent in 2001-02 and 31 per cent in 2000-01.

There was moderate increase in the power generated by thermal stations. The total generation by all the stations rose from 20325 mu in 2001-02 to 21080 mu in 2002-03, by

3.7 per cent against 4.4 per cent. Three out of the four stations recorded increases while one thermal station viz. North Chennai TPP suffered. An assessment of the efficiency of power plants in terms of quantum of coal consumed for generating one unit of power and PLF showed that Ennore Thermal Power Station was the most efficient one.



The performance of these four thermal projects with reference to their PLF, quantum of coal consumed per unit of energy were gone through and presented below.

Table - 7
Performance of Thermal Sources

Project	Generation (mu)		PLF (%)		Quantum of coal consumed per unit of power (kgs.)	
	2001-02	2002-03	2001-02	2002-03	2001-02	2002-03
Ennore	1149	1742	29.2	44.2	1.0	0.95
Tuticorin	8105	8193	88.1	89.1	0.66	0.62
Mettur	6396	6738	86.9	91.6	0.75	0.72
North Chennai	4675	4407	84.7	79.9	0.78	0.74

Source: TNEB.

A look into the coal supply position with reference to station-wise linkages showed that there was not much constraint on coal supply during the year. Against the overall coal linkage of 15.04 lakh tonnes, 14.74 lakh tonnes coal was supplied. Among the four power projects, Mettur alone had surplus stock.

Table - 8 : Coal Linkage and Supply

(Lakh tonnes)

	Coal Linkage		Coal Received		Surplus / Deficit	
	2001-02	2002-03	2001-02	2002-03	2001-02	2002-03
TTPs	5.22	5.24	5.18	5.00	(-)0.04	(-)0.24
ETPs	2.31	1.89	1.03	1.63	(-)0.28	(-)0.26
MTPs	4.34	4.31	4.82	4.61	(+)0.48	(+)0.30
NCTPs	3.33	3.60	3.66	3.50	(+)0.33	(-)0.10
Total	15.20	15.04	14.69	14.74	(-)0.51	(-)0.30

Source: TNEB.

Power generation to the tune of 1107 mu was gained from the three gas turbines functioning in the State during 2002-03, which is higher than the realisation of 870 mu in 2001-02. All the turbines performed creditably well. While the Basin Bridge GT had a remarkable 59.5 per cent increase, Kovilkalappal had accelerated by 4.3 per cent in 2002-03. The

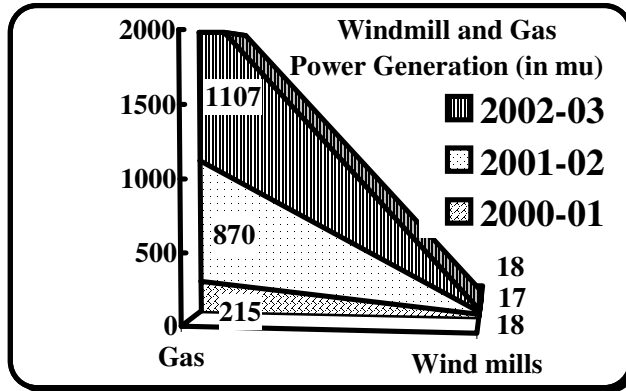


Table – 9
Power Generation : Gas Turbines (mu)

Basin Bridge	173	276
Kovilkalappal	697	727
Valuthur	*	104
Total	870	1107

* Established in March 2003 only.

Valuthur Gas Turbine commissioned in March 2003 was able to start with 104 mu in 2002-03.

Power generation by wind mills (numbering 120) functioning under the control of TNEB added 18 mu to the State grid during 2002-03 against 17 mu in 2001-02. However, it

is significant that as many as 3248 private sector windmills in the State supplied significant quantity to the State grid by way of purchases by the Board.

8.1.3. Power Purchases:

Apart from the power generation of the State's own projects, energy is bought from both the Central sector and Independent Power Projects. The share of these two sources were in the order of 72:28 in 2000-01 which has altered due to the dominant role of IPPs in 2002-03 as 60:40. There is a steady increase in the quantum of power purchase from 16617 mu in 2000-01 to 18358 mu in 2001-02 and 21263 mu in 2002-03. The purchases have helped to tide over the demand of various consumers.

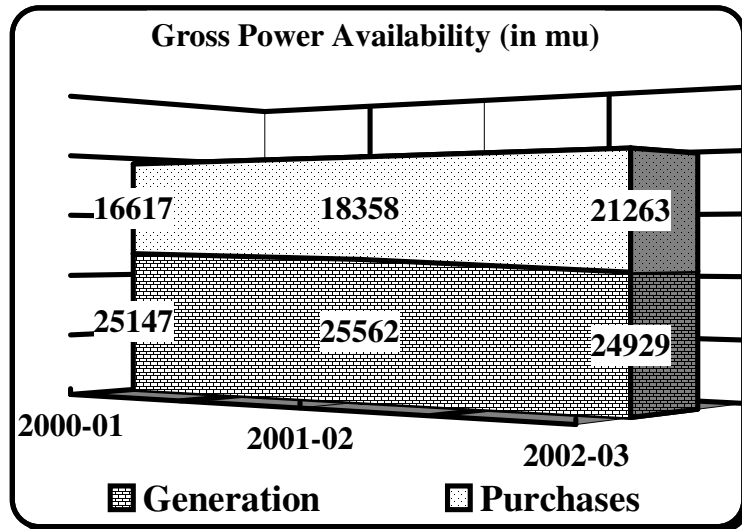
Thermal Power Projects at Neyveli and Ramagundam along with atomic projects at Kalpakkam and Kaiga under the Central sector fold extend 12798 mu in 2002-03 (against 11224 mu in 2001-02). Vying with this, the IPPs at Basin Bridge, Samalpathi, Pillaiperual Nallur, Samayanallur and Neyveli together are also improved the output by 18.7 per cent during 2002-03. Thus, a significantly higher increase of 15.8 per cent in 2002-03 over and above the 10.5 per cent record in 2001-02 was seen.

Table - 10 : Power Purchases (mu)

	2001-02	% increase	2002-03	% increase
I. Central Sector Projects	11224	(-)5.7	12798	14.0
i. Neyveli I	3375	1.4	3659	8.4
ii. Neyveli II	2773	(-)6.7	2832	2.1
iii. NTPC, Ramagundam	4475	(-)8.7	4442	(-)0.7
iv. MAPP, Kalpakkam	601	(-)15.4	402	(-)33.1
v. Kaiga Atomic	-	-	1463	-
II. Independent Power Projects	7134	51.6	8465	18.7
Total Purchases	18358	10.5	21263	15.8

8.1.4. Gross and Net Power Availability:

Power generation from the State's own sources and purchases from various sources pooled together in the State Grid constitute Gross Power Availability. During the year 2002-03, gross power availability was of the order of 46414 mu which was higher than the 43920 mu in 2001-02, by 5.6 per cent. Deductions in the form of auxiliary consumption, line losses and sale to other States took away about 22 per cent of the gross power availability and the net power available for sale within the State was assessed at 36077 mu. The increase is about 2.9 % over the 2001-02 level of 35064 mu.



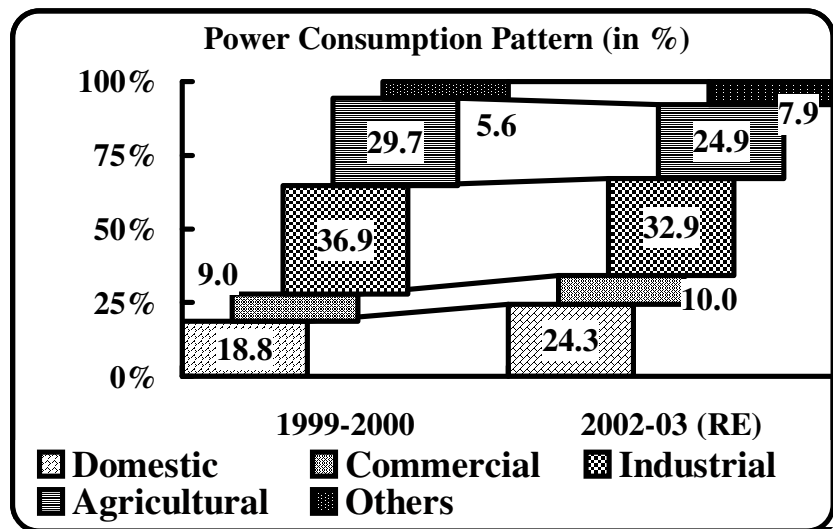
of the gross power availability and the net power available for sale within the State was assessed at 36077 mu. The increase is about 2.9 % over the 2001-02 level of 35064 mu.

Table - 11
Gross and Net Power Availability (mu)

	2001-02	% increase	2002-03	% increase
1. Gross Power Availability	43920	5.2	46389	5.6
2. Auxiliary Consumption	1791	7.1	1878	4.9
3. Kadampari Pumping	96	35.2	185	92.7
4. Line losses	6831	3.5	7979	16.8
5. Sales to other States	138	(-)31.7	270	95.7
6. Net Power Available or Total sales within the State	35064	5.6	36077	2.9

8.1.5. Number of Consumers and Pattern of Consumption:

The power sector in the State caters to the need of more than 160 lakh consumers of different categories as of March 2003 against 153.43 lakhs by the end of March 2002. Subsequently, the connected load also went up to 28063MW by the end of 2002-03 from 26351 MW in 2001-02. Against a 7.2



per cent increase in demand for energy (connected load) the power availability increased only by 2.9 per cent during 2002-03.

As in the previous years, power consumption is dominated by three sectors viz. Domestic, Agriculture and Industry and these sectors together accounted for about 82 per cent of the total consumption. As of 2002-03, industries sector had a major share of 32.94 per cent, followed by agriculture (24.85%) and domestic (24.31%) sectors, of late, the commercial category of consumption is increasing at a faster rate. Among all the categories, a faster 14.6 per cent pace of increase was seen in the domestic category followed by commercial segment (8.1%). For the first time in the past fifteen years, the agriculture consumption had declined by about 5 per cent in 2002-03.

Table - 12 : Power Consumption Category-wise

Category	2001-02		2002-03	
	mu	% share	mu	% share
1. Domestic	7712	21.91	8837	24.31
2. Commercial	3361	9.56	3632	9.99
3. Industries	11220	31.87	11974	32.94
4. Agriculture	9495	26.97	9030	24.85
5. Public Lighting and Water works	992	2.82	1038	2.86
6. Others*	2422	6.88	1836	5.05
Total Sales	35202	100.0	36347	100.0

*Others includes Traction, Bulk supply to licenses and miscellaneous sales within the State and Sales to Other States.

8.1.6. Power Tariff:

Power tariff is directly linked to the cost of generation of electric power and the expenditure incurred for distribution. The cost of generation varies with the sources of origin. While the per unit cost of hydel generation during 2001-02 was 35.21 paise, in respect of thermal generation it was higher at 198.61 paise. Still steeper is the cost of generation from gas turbines which obtained at 272.55 paise per unit. The cost at the supply end has increased from 265.83 paise in 2000-01 to

Table - 13 : Power Tariff Pattern (paise per kwh)

	Effective from 7.1.00	Effective from 1.12.01	Effective from 16.3.03
1. High Tension Industrial	350	330	350
2. Low Tension (Bimonthly)			
1. Domestic			
- Upto 50 Units	65	85	110
- 51 - 100 Units	75	100	130
- 101 - 200 Units	150	200	260
- 201 - 600 Units	220	300	350
- Above 600 Units	305	400	475
2. Commercial			
- Upto 200 Units	385	460	530
- Above 200 Units	435	510	580
3. Agriculture	Free	Free	20
4. Industrial			
- Upto 1500 Units	330	360	400
- > 1500 Units	400	440	470

306 paise in 2001-02 and 318 paise in 2002-03. To meet the raising cost, the power tariff is revised periodically. The changing tariff structure since January 2000 is presented below:

The subsidy given to the farming community was revised consequently due to the enactment of the Electricity Regulatory Commission Act, 1998 (Central Act 14 of 1998). Following that Government of Tamil Nadu which constituted the Tamil Nadu Electricity Regulatory Commission on 17.3.1999 to fix electricity tariff to various categories of consumers in Tamil Nadu.

Presently, the agriculture consumption is charged at Rs.250 per HP per annum or 20 paise per unit. To safeguard the State farmers who were already enjoying free supply of power, a direct cash subsidy was announced by the Government. Under this scheme a sum of Rs.1000/- per year for all the small and marginal farmers and Rs.1250/- per year for small and marginal farmers having 5 HP service is sent as money orders. A total number of 8.59 lakh farmers are benefited by this scheme. Services given to huts were also subjected to power charge. Rs.10/- per month is charged for every hut connection given to the rural areas. With a view to helping the poor hut dwellers, a sum of Rs.100/- per annum is paid as subsidy. This is expected to benefit nine lakh rural hut dwellers.

8.2. Tamil Nadu Among Major States:

A comparison of the State's performance with that of the major States including the neighbouring States is made.

Table - 14 : State-wise Performance of Power Sector (2001-02)

States	Capacity (Mu)	Gross availability (Mu)	Total consumption (Mu)	No. of pumpsets energised (lakhs)	Total no. of consumers (million)	Per capita consumption (1999-00)
Northern Region						
1.Punjab	4529	25572	230-81	8.11	5.21	921
2.Rajasthan	2992	48793	18294	6.54	5.42	335
3.Uttar Pradesh	4659	68252	28011	8.15	8.80	176
4.Haryana	1990	19948	11707	4.27	3.49	531
Western Region						
5.Gujarat	4713	51314	32693	7.33	7.10	835
6.Madhya Pradesh	2986	30512	26531	12.45	8.14	352
7.Maharashtra	9744	84004	47063	23.45	12.98	520
Southern Region						
8.Andhra Pradesh	6179	80127	29781	19.34	13.55	391
9.Karnataka	4323	52417	19553	12.91	10.82	387
10.Kerala	2031	13666	11830	4.06	6.45	262
11.Tamil Nadu	5222	48080	36350	17.64	13.85	484
Eastern Region						
12.Bihar	598	10098	9099	2.76	2.74	141
13.Orissa	2298	22274	11400	0.75	1.00	355
14.West Bengal	3583	31737	10500	1.12	3.57	204
North East Region						
15. Assam	597	3065	2060	0.04	0.90	95

Tamil Nadu figures will not tally with the earlier ones.

Source: Statistics at a Glance : TNEB, Chennai - 2.

The following results emerged from the above table:

1. Among the fifteen major States, Tamil Nadu took third top position in total Installed Capacity and total electricity consumption as of 2001-02.
2. Tamil Nadu tops the list with reference to the number of consumers served and the third largest State having more number of pumpsets energised (17.64 lakh).
3. In terms of 'per capita' power consumption, the State stood in the fourth place.

8.3. Non-Conventional Sources of Energy:

The exhaustible nature of resources like oil and coal and the environmental damages caused by the burning of these resources makes it imperative to explore and utilise the abundant renewable sources of energy such as wind, solar, water, sea tide and bio-mass. Tamil Nadu is the leading State in India in promoting and harnessing renewable sources of energy particularly wind and biomass for power generation at an early stage. With a view to developing and propagate the non-conventional sources of energy, the Tamil Nadu Energy Development Agency (TEDA) was constituted in 1985. Apart from serving as a coordinating agency to promote the use of non-conventional energy sources, TEDA acts as the nodal agency to the Ministry of Non-Conventional Energy Sources (MNES) for the past several years to implement Centrally sponsored and funded Schemes in the State. The total installed capacity under non-conventional energy sources is 1000 MW as on 31.3.2002 which is about 13 per cent of the total TNEB Grid capacity. The major share of this comes from wind energy followed by bagass based co-generation plants in sugar industry. It may be noted that investments in these projects have mainly come from private sector.

Table-15 : Energy Generation From Non-Conventional Source (mu)

Sl.No.	Source	1999-2000	2000-01	2001-02	2002-03
I	Government				
1.	Wind	27.2	19.5	17.8	19.5
2.	Bio-Mass	-	-	-	-
3.	Bio Gas	-	-	-	-
4.	Solar	0.05	0.13	0.12	0.15
5.	Co-Generation Plants (Co-operatives)	60.0	54.0	54.0	54.0
	Total	87.25	73.63	71.92	73.65
II	Private				
1	Wind	1129.4	1070.7	1239.3	1286.2
2	Bio-Mass	-	-	-	-
3	Bio Gas	-	-	-	-
4	Solar	-	339	0.031	0.018
5	Co-Generation Plants	312	-	340.0	546.0
	Total	1441.4	1409.7	1579.331	1832.218

Source: Tamil Nadu Energy Development Agency, Chennai.

8.3.1. Wind Energy:

Tamil Nadu is endowed with rich wind energy potential in the country. The lengthy mountains (Western Ghats) with three prominent passes causes funneling effect enabling strong flow of winds. One of the main reasons for the success of the wind power programme in Tamil Nadu is the identification of high wind prone zones with an annual mean wind speed of 18 kmph and above and annual mean wind power density of 150 watts/m² and above 30 m level through wind resource assessment studies carried out by TEDA from 1986 with financial assistance from MNES, Government of India and Government of Tamil Nadu and technical assistance of Indian Institute of Tropical Metrology, Bangalore. A total of 67 stations were covered under the Study each extending to about 10 sq.km. area. After a period of one or two years all the stations except three were closed. Based on the study of data from these stations, MNES have declared 40 stations / locations as potential sites for commercial exploitation of wind energy, of which 17 have been exploited so far.

Micro-survey of wind resource around select wind monitoring stations has also been carried out to provide reliable data to wind farm developers for setting up wind farms in potential areas. C-WET under MNES funding programmes has completed the study for 19 sites out of 40 potential sites.

Further, in order to instill confidence among the private investors on the commercial viability of wind power generation, TEDA along with TNEB set up demonstration wind farms in 8 locations in the State for a total capacity of 19.35 MW during 1986 to 1993 with financial assistance from MNES and Government of Tamil Nadu. Motivated by the success of the wind mills under demonstration programme and conducive policies of the TNEB, State Government and Ministry of Non-Conventional Energy Sources, private investments came in a big way which has made Tamil Nadu as No.1 State in the country in wind power generation with a total installed capacity of 990.2 MW all from private sector except for 19.35 MW established jointly by TEDA and TNEB as on 31.3.2003 against 1870 MW in India which represents over 50 per cent of total capacity in the country. During 2002-03, the private investment helped add 133 MW of capacity. The windmills generated 1306 million units during 2002-03. The private wind farm investors are also allowed to wheeling the power generated from their windmills and use the same in HT industry of their own or subsidiary concern, situated in Tamil Nadu. The H.T. windmills can also bank the surplus energy and use the same any time during the financial year. TNEB charges wheeling and banking charges at 5 per cent each. TNEB also buys power from wind farm developers at Rs.2.70 per unit from 27.9.2001, which is valid for 5 years.

8.3.2. Bio energy:

Biomass is another important source of energy that is being exploited in Tamil Nadu. TEDA has undertaken Taluk level biomass resource assessment studies in 49 taluks with financial assistance from MNES and Government of Tamil Nadu and the potential is assessed as about 300 MW. The Government has bestowed greater attention for the exploitation of biomass for generation of electricity using bagasse from sugar mills, biomass etc. TNEB buys surplus power at Rs.3.15 per unit, with 5 per cent annual escalation upto 2010 besides concessional wheeling charges of 2 per cent and 10 per cent

for distance upto 25 km and above 25 km respectively and banking charges of 2 per cent for captive use of power.

The estimated potential of co-generation in sugar mills from bagasse based co-generation in Tamil Nadu is 450 MW of which 222.6 MW has been harnessed up to 31.3.2003, covering three co-operatives and 12 private sugar mills. The exportable surplus power fed to TNEB is 125 MW against 484 MW in the country. During 2002-03, additional capacity of 80 MW was added. A biomass power plant of 12 MW capacity is in operation in Kancheepuram district. Other plants for a total capacity of 64.5 MW have been issued consent by TNEB. New technology called biomass gasifier is also being promoted for thermal purposes in industries and electrical purposes in industries and institutions.

8.3.3. Solar Energy:

Solar Energy is being harnessed in two ways - for photovoltaic i.e. electrical purposes and thermal purposes. Solar PV energy is used extensively for home lighting and street lighting especially in remote areas. Solar thermal energy is used for water heating, air heating or drying and cooking purposes.

Table-16 : Solar Energy: Achievement (Physical)

Sl. No.	Category	(Number)				
		1999-2000	2000-01	2001-02	2002-03	2003-04 (Targets)
1	SPV Pumps	25	-	-	64	175
2	Lantern	1660	2000	4500	-	-
3	Street Light	100	100	150	509	3387
4	Home Light	17	50	400	329	500
5	Water Heating Systems					
5(a)	Domestic	300	300	400	-	-
5(b)	Industrial/Institution	6	10	20	-	10
5(c)	Government Buildings	2	5	3	-	11

Source: Tamil Nadu Energy Development Agency, Chennai.

8.3.4. Power generation from Waste:

The scheme for producing gas and electricity from Sago waste water poultry litter and vegetable waste are under implementation in Tamil Nadu. While the project for utilising tapioca, sago waste water has been completed in Pappireddipatti (Dharmapuri district) the project for power generation from poultry litter is under implementation at Sarkaruduppam in Namakkal district. Further, the generation of electricity from vegetable waste available from Koyambedu wholesale Vegetable market is also proposed to be taken up with financial assistance from Government of India.