

## Electricity Sector

### People's charter of demands

The recent electricity tariff increases have raised difficult and disturbing questions about the management of power sector in Andhra Pradesh over the years. Huge system losses unchecked over a period of time have led to deep crisis. This was compounded by the governments' failure to provide subsidies to meet the deficits arising out of the agricultural service connections at uneconomical rate. Nor were rational policies adopted to encourage energy saving in agriculture. As a net result of several years of criminal neglect, rampant corruption and rank incompetence, the once much acclaimed APSEB and its successor organisations are now facing severe financial crisis.

#### Unreliable statistics :

Unfortunately reliable statistics on the performance of APSEB/ AP Transco are not available. The claims of Transmission and Distribution (T & D) losses of power for instance have been frequently revised.

#### T & D losses estimated

Year	T & D losses %
1994-95	18.94
1995-96	18.85
1996-97	32.04
1997-98	33.06
1998-99	31.80 (later revised to 38.1%)
1999-2000	36.90
2000-2001	35.40 (estimated)

As seen from these figures the T & D losses have been growing alarmingly over the years. Part of this can be explained by statistical jugglery. Whenever it suited APSEB and the government, they showed very high agricultural consumption. As such a claim could not be substantiated, they have reduced the estimates of agricultural consumption since 1996-97, and have accordingly increased the estimates of T & D losses. These estimates have been changed at will. For instance the T & D losses for the year 1998-99 were initially shown to be 31.8%. However this figure was later revised upwards to 38.1%

The amount of energy metered and billed is a more accurate indication of efficiency of the T & D system

### Percentage of energy metered and billed

Year	Percentage
1998-99	43%
1999- 2000	42.72%
2000-2001	41.58%

### Unacceptable line losses :

The above figures indicate that only about 40% of the power flowing into system is actually metered and billed. That means only about 2 units out of 5 units supplied to AP Transco are metered and billed. An appalling three-fifths of the power is not metered and billed, or lost in the system. Every single percentage of power loss in the system means a loss of revenue to the tune of nearly Rs.100 crores. In a well managed system about 10-12% losses are permissible. These losses occur at various levels of transformers and conductors. Giving allowance for a certain degree of inefficiency, these T & D losses should not exceed 16%. However AP Transco estimates system losses as follows:

Nature of loss	AP Transco %	International standards %
Transmission	4.5	2-3
Distribution	18	7-9
Commercial losses estimated (thefts)	14.4	Nil
<b>Total</b>	<b>36.9</b>	<b>9-12</b>

These statistics clearly show that at least 20% of the power supplied to the system is being stolen or lost because of incompetent management, corruption and poor infrastructure. The purchase cost of this 20% power (after giving allowance to 16% acceptable system losses) would be in the order of Rs.1680 crores. If an average tariff of Rs.3 per unit is realised from this energy unnecessarily lost, the revenue lost would be a staggering Rs. 2500 crores.

The saddest feature of these huge and unnecessary losses is their continuance for years without any tangible and effective steps to improve the situation. For years the government and AP Transco have been claiming that all steps are taken on war-footing to eliminate theft and T & D losses. However there is no real evidence of tangible positive results so far. In effect the consumers are now forced to bear the unfair burden of gross incompetence and corruption in the management of the system.

### **Agricultural consumption :**

APSEB and AP Transco have also been showing grossly varying figures of agricultural consumption over the years.

<b>Years</b>	<b>% of Agriculture consumption</b>	<b>% of energy</b>
1994-95		47.3
1995-96	38.7	48.7
1996-97	24.4	37.4
1997-98	25.7	39.3
1998-99	25.5	39.2
1999-2000	-	-
2000-2001	23	35.6

As agricultural power is not metered, farmers are charged a flat rate on the basis of load irrespective of consumption. Various assumptions have been made from time to time effectively transferring the system losses to agricultural consumption. As sample metering showed that agricultural consumption may be lower, the figures are being revised now, showing correspondingly higher system losses. However there is evidence to suggest that the flat rate of power charged for agricultural sector encouraged use of low efficiency pumps and motors, excessive use of power and needless drawal of water depleting ground water reserves. It is generally accepted that farm sector needs to be partially subsidized for lifting water. However all efforts should be made to save power and ground water, even as reasonable subsidies are continued. Despite the mounting crisis in the power sector, no effective steps have been taken to conserve ground water and save energy. Even now no rational policy for farm sector power has been evolved.

### **Revenue deficits :**

On account of the mounting inefficiencies, rampant corruption and theft and unsustainable subsidies, APSEB and AP Transco have been claiming huge revenue deficits. As electricity supply Act 1948 makes it mandatory for the government to ensure 3% rate of return to the utilities, the government has been transferring resources to the sector over the years. However in reality these have been only book transfers or writing off of loans and as of now there have been no real cash transfers.

<b>Year</b>	<b>Revenue deficit</b>	<b>Govt. payments</b>
	Rs. in crores	
1994-95	857	Equity written off to a tune of Rs.944 crores
1995-96	1128	Loans written off to a tune of Rs.1259 crores
1996-97	721	Loans written off to a tune of Rs.850 crores
1997-98	1134	Subsidies to a tune of Rs.1255 crores due from government
1998-99	2038	Rs.2519 crores due from government
1999-2000	3600	- - -
2000-2001	3558	Rs.1626 crores promised

These figures clearly show that there have been no real cash transfers to APSEB/ AP Transco from government. Over the years equity and loans have been written off merely reducing requirement of return on reduced equity, or reducing the burden of debt servicing. The control of government on APSEB/ AP Transco has been total in terms of policy, tariffs and personnel. In addition there has been interference in day-to-day functioning and routine executive decisions. Pilferage, thefts and corruption continued unchecked on account of political patronage and lack of political will to improve the system. The power sector became the proverbial goose that laid golden eggs, and public interest suffered grievously. Endemic power shortages, voltage fluctuations, frequent tripping, tremendous corruption, harassment and extortion, populism, unreliable power and high tariffs have become the order of the day.

### **Disproportionate rise of domestic tariffs :**

In this back drop, the AP Electricity Regulation Commission (APERC) was created under AP State Electricity Reform Act, 1998 in order to insulate tariffs and licensing decisions from partisan political control. On May 27, 2000 APERC gave its orders on the tariff revision proposals of AP Transco for the year 2000-2001. The resulting higher tariffs affected the domestic sector disproportionately. This distortion was largely a result of the high estimates of cost to serve. Most of the thefts (95%) are assumed in LT sector alone; the burden of thefts is thus disproportionately borne by domestic sector. In addition, as domestic consumption is largely during the peak hours between 6 PM and 10 PM, AP Transco charged most of the generation infrastructure cost to the domestic sector. Both these assumptions — high losses and thefts in domestic sector, and additional cost on account of peak hour load — are flawed. It is unlikely that most thefts are in domestic sector, and in any case thefts are a result of incompetence, connivance and corruption in AP Transco. It is unreasonable to transfer the burden of the utilities' follies to the honest consumers who pay bills. In a situation of endemic scarcity and power cuts, it is not reasonable to transfer the burden of additional power generation entirely onto the domestic sector. In addition, nearly half of the power generation

capacity in the State is in hydro-electric stations, in which cost of generation is very low. These stations can be switched on and off at will, and ought to be operated when the load peaks. Given these facts, the assumption of 496ps as cost to serve in domestic sector is highly exaggerated. Unfortunately APERC has largely relied on these unscientific estimates while revising tariffs.

Domestic Tariff Comparison								
No of units	Old		ERC			Revised		
	Rate	Amount	Rate	Amount	% Incr.	Rate	Amount	% incr
50	0.80	40.00	1.45	72.50	81%	1.35	67.50	69%
100	1.20	120.00	3.90	267.50	123%	2.95	215.00	79%
200	1.65	330.00	3.90	657.50	99%	2.95	510.00	55%
300	2.10	630.00	6.15	1272.50	102%	4.50	960.00	52%
400	2.90	1160.00	6.15	1887.50	63%	4.50	1410.00	22%
500	3.40	1700.00	7.05	2592.50	53%	5.25	1935.00	14%

From the above table it can be seen that the burden of tariff increase has fallen disproportionately on the domestic sector. In particular, greater hardship is felt by the steep increase in 50-200 units slab and reduction of the earlier six slabs into four. Given the public concern and the steep hike, there is a strong case to reintroduce the earlier six slabs, and to provide relief in 50-200 units slab. However, relief to the small domestic consumer may pacify the public, but the crisis in power sector will need to be addressed squarely to protect consumer interests.

**Real issue — better management, not revenues :**

However the real issues in Electricity sector are camouflaged in the current debate arising out of tariff revision. If our whole emphasis is on increasing revenues to meet the expenditure, then the burden of tariffs will be unsustainable. If AP Transco is suffering losses, then some one has to pay. The only way of maintaining tariffs stable even as losses are mounting is by huge government subsidies to AP Transco. The government itself is showing huge fiscal deficits and all development expenditure has been stopped. Therefore the burden of subsidies will be transferred to citizens in the form of higher taxes. People are both consumers of power and tax payers. It makes little difference whether we are forced to pay higher tariffs as consumers, or higher taxes as citizens. In a deep sense the terms of debate in power sector now are short-sighted and counterproductive.

**Lok Satta** firmly believes that the real issues in power sector are better management, more transparent policies and decisions and reduction of expenditure and losses now and in the future. The events of the last two years clearly show that increasing tariffs in themselves provide no solution in the long-term without addressing the fundamental problems plaguing the power sector. Last year AP Transco projected revenue deficits of the order of Rs.2400 crores, and T and D losses to a tune of 31.8% and sought tariff revisions. Accordingly, tariffs

have been increased last year to a tune of over Rs.430 crores. However, a year later, AP Transco has now projected a revenue deficit of Rs.3700 crores and T & D losses of 36.9%. Again tariff revisions to a tune of Rs.1083 crores have been granted by APERC, part of which 281 crores was offset by increased government subsidies. There is no guarantee that next year AP Transco will not again come before APERC and the public and seek higher tariffs claiming much higher revenue deficit and higher T & D losses. Exclusive focus on revenue deficits and tariffs thus leads to a dangerous vicious cycle and eventual collapse of the system. APERC has also taken into account the time lost in the accounting year before tariff revision was ordered. Since AP Transco should get the intended benefit of tariff increases in a shorter span, APERC has correspondingly made higher revision to meet the requirement. However, this means that next year, even without further enhancement of tariff, AP Transco will automatically derive 16% additional revenues. Therefore the tariffs now ordered cannot form the basis for further revisions.

### **Fundamental issues :**

The real answer to the crisis lies in addressing three fundamental issues to improve system efficiency, reduce corruption and minimize future expenditure.

- 1) T and D losses
- 2) Power Purchase Agreements (PPAs)
- 3) Distribution privatization

### **T and D losses :**

At present AP Transco is metering and selling only 41% of the power supplied to it. The one verifiable indicator of improvement in the system is increase in percentage of metering and billing for consumption outside agriculture. APERC in its order stated that AP Transco "frankly admitted" that they cannot improve metering and billing by at least 10%, and therefore APERC directed that metering and billing should go up by 7% to at least 48% during this year. This is a wholly unacceptable situation. People are not only consumers, but are also the owners of AP Transco, which is a public utility. Rank incompetence and corruption cannot be allowed to continue unchecked. AP Transco itself estimates that about 13-14% of power is stolen, and Distribution losses amount to about 18%. It is absurd to allow such huge thefts and technical losses. A 10% improvement is the minimum we should demand and get over the year, and this power saved will fetch about Rs.1250 crores per year at Rs.3 per unit.

If the government and AP Transco with all their personnel, resources and powers at their command confess to their inability to at least reduce thefts and save 10% of the power, then they forfeit all moral right to manage public affairs. Therefore we, as people, demand at least 51% of power to be metered and billed by 31 March 2000. This should be exclusive of conversion of agricultural pump sets to metered connections if any. This should also exclude the 8% additional billing that might automatically result in the current year (without any efficiency improvement) on account of monthly billing proposed now.

Financial Position of AP Power Sector								
		2000-01		2001-02		2002-03		2003-04
1	Demand Projection (MU)		27500		30000		33000	36000
2	Energy Losses (MU)		15000		10500		8750	7500
			35%		26%		21%	17%
3	Energy purchases		42500		40500		41750	43500
4	Revenue Requirement		8365		8200		8500	9000
	PP Costs		7042		6745		6900	7200
	Other costs (10 % increase)		1323		1455		1600	1800
5	Revenue Realisation (Rs in crore)		5448	6521	7110		7821	8532
			(As per old tariff)	(As per revised tariff)				
6	Revenue Deficit (Rs in crore)		2917	1844	1090		679	468
7	To be covered by							
	Subsidy		2417	1344	890		579	368
	Efficiency improvement		500	500	200		100	100
	Ave. purchase cost/unit			1.66	1.66		1.66	1.66
	Ave selling cost / unit			2.37	2.37		2.37	2.37

**Note :**

It is assumed that

- 1) Demand will increase 10% per annum
- 2) Power Purchase Cost will be stable during the period 2000- 2004
- 3) Average sale price of power will be as per APERC order for the year 2000-2001
- 4) Reduction of T & D losses will be 10% in the year 2000-2001, 5% in the year 2001-2002 and 4% in the year 2002-2003

As the table above shows, improvement of efficiency and reduction of technical losses and elimination of thefts alone will significantly improve the financial health of AP Transco and the four distribution companies. Increase in non-agricultural billing by 10% in the current year, 5% in 2001-2002, and 4% in 2002-2003 is both practical and vital for the future of electricity sector. As the table shows, if these improvements are made, it will be possible to significantly reduce revenue deficits even at the current tariff levels. Tariff increases will not be necessary for the next three years. Simultaneously, the subsidy burden on government will fall significantly to a nominal Rs.368 crores by 2003-04. Clearly, genuine improvements in distribution and elimination of thefts and corruption are the most vital requirements to safeguard the future of the power sector.

### **Power Purchase Agreements (PPAs)**

As APSEB's financial health declined over the years, there has been no investment in new generating stations to meet the increasing demand. The APSEB/ AP Transco has entered into power purchase agreements (PPAs) with several private companies — foreign as well as domestic. There are two serious problems with these projects. Firstly the realistic capacity of AP Transco to buy power from private sector in the next five years does not exceed about

2500 MW. However, the State has entered into PPAs with projects with a total capacity of over 5600 MW. There are no objective and verifiable norms as to which project will be promoted, and which will be sidelined. This arbitrariness led to enormous scope for corruption and delays. Secondly as power plants have been promised returns on 'cost plus' basis, capital costs of these plants have been escalated and are highly variable. Plants with similar fuel and in the same locality cost a lot more than other comparable projects, resulting in higher tariffs. Added to this there has been no proper planning and foresight in promoting plants with appropriate fuel mix keeping in view economy, availability, and reliability. As a result naphtha-based short-gestation projects have been promoted, and the rising cost of naphtha has led to unaffordable tariffs. While gas-based power is clean and cheap, there is a limitation of gas availability, which may not exceed 1000 MW. Also gas has greater value as a chemical than as a fuel, and therefore the limited gas reserves cannot be used exclusively for power generation.

Given these facts, unless a transparent and fair policy is evolved and implemented, there is a real danger of enormous escalation of tariffs as private projects become operational. The Kondapalli project which is already commissioned will have to be kept idle on account of high cost of naphtha, and AP Transco will have to pay about Rs.300 crores per annum as fixed costs until gas supplies are available. In Maharashtra, Enron is similarly being paid about Rs.1000 crores per annum as fixed costs. While as of now the role of private projects in power sector is marginal, it will grow considerably over the next few years. As new projects come in, tariffs also will rise as their capital cost has to be repaid in about seven years or so. Therefore, people should assert now to ensure that abundant and cheap power is available, and the future is not mortgaged by promoting high cost power projects.

### **Decentralization of distribution:**

The government has repeatedly declared its policy of privatization of distribution network. People are unconcerned about ownership and management of distribution companies, as long as abundant, affordable, high quality power is available to meet our consumption needs and fuel economic growth. When the government and management of AP Transco proclaim their inability to manage the distribution system, reduce line losses, and eliminate thefts and corruption, competitive private management is one option. However, the model now being contemplated is privatization of four large distribution companies, each of which has infrastructure worth about Rs.7000 crores or more in terms of replacement value. Permanent transfer of such large public assets necessarily means that only huge global companies will be involved. The large investments needed, and the stiff qualifying criteria to bid will reduce competition severely. There is apprehension in the minds of people that the huge system losses, inefficiency and corruption will be used as alibis to transfer the vast distribution network for a paltry consideration. Such a process will inevitably give scope for enormous corruption. Even after privatization, large distribution networks covering five or six districts cannot be improved without involving the local community and the workers. Also, in management of distribution of power there are no real economies of scale beyond a sub-station.



The above pictorial representation of the electricity generation, transmission and distribution network shows that about 4.5% of power is lost in high tension transmission. While there is room for reduction of these losses by about 1.5%, the investments needed are relatively high. Also there are no thefts possible in transmission. The real area of concern is distribution, in which losses are of the order of 32-33%. About 14% of the power is estimated to be lost by thefts alone. Elimination of thefts requires political will, legal enforcement, and local strength and influence to counter political pressures and small mafias. Technical improvements in distribution do require infusion of technology and investments, but both are within the reach of small entrepreneurs at local level. Even technical improvements require close local monitoring and painstaking fieldwork and not central control.

In Andhra Pradesh, the 33 KV substations number about 1800. A substation is a viable unit for distribution management. If each of these 1800 substations is transferred to private entrepreneurs with distribution licenses for a finite period of say five years each time, then there will be real improvement in a short span of time. This method will encourage tremendous competition among hundreds of small entrepreneurs, mostly from the State. The employees, who may number about 50 to 100 in each substation, will have a stake in improving the performance in a limited area with finite investment. As hundreds of local entrepreneur's deal with the system, detection and elimination of thefts and corruption will be far more easy. Many employees who understand the local conditions may well become capable entrepreneurs. Such distribution rights can be auctioned with the private entrepreneurs earning the right to derive profits from power saved by improving the distribution system. This decentralized distribution will also give flexibility to learn from past

experience and improve practices. Ownership need not be transferred to private sector permanently. This model of decentralized distribution will be somewhat similar to annual auctioning of distribution rights of arrac. As arrac distribution permits are auctioned, illicit distillation is controlled locally with ease. Similarly cable TV operators came up on a large scale all over the State and are providing high quality service to consumers. Distribution privatization is as much a political and social issue as an economic one. Unless the private power distributors enjoy local clout and carry the employees with them, they will not be able to invest and improve the distribution system, or control theft and corruption. The safest and most effective way of involving citizens and workers and encouraging private initiative in distribution of power is on a small-scale at the substation level and town level.

### **Citizens as consumers and owners:**

Unless government and AP Transco address these basic issues of T and D losses, power purchase agreements and decentralized and transparent transfer of distribution rights, the electricity sector is bound to sink deeper into financial crisis and collapse sooner, than later. AP Transco is owned by the people of the State, and the government is merely our agent. The people have extremely serious stakes in the management of power sector. In many ways, the future of our economy and the fiscal health of government depends on the way the power crisis is handled. Therefore we should act as citizen-owners in addition to asserting our rights as consumers.

### **Charter of demands :**

Therefore Lok Satta is making the following demands of the government and AP Transco to set things right in the power sector.

- 1) State government / AP Transco should give a categorical commitment (in writing), backed by a verifiable time-bound activity chart, to improve non-agricultural billing from the present 41% to at least 51% by March 31, 2001. This should exclude the 8% addition, which accrues on account of monthly billing, if it is introduced, and conversion of agricultural slab connections to metered connections if any. This commitment of government should be available in writing by July 31, 2000, along with a time-bound, verifiable action plan.
- 2) State government / AP Transco should release a comprehensive white paper on PPAs with private power projects and give a detailed plan by July 31, 2000 indicating:
  - a) the purchase cost of power – fixed and variable costs - project wise
  - b) pricing policy of power purchase - including incentives, station heat rate, auxiliary consumption, secondary fuel consumption etc - project wise
  - c) the priority of purchase of power and further development
  - d) the fuel mix of the projects from which power can actually be purchased

- e) availability of gas, whether naphtha is proposed for any project, how many MW of power will be produced for each fuel - gas, coal, naphtha etc
  - f) the details of the need for, and capacity to, purchase power from private projects over the next five years
  - g) the action proposed in respect of unviable power projects from which power cannot be purchased on account of high cost or low demand
  - h) action proposed in respect of each project which did not achieve financial closure — does the govt. / AP Transco wish to pursue these projects, and assist them in reaching financial closure, if so, which projects, how and why
- 3) AP govt. and AP Transco should immediately give an irrevocable written commitment that in the event of privatization of distribution network, they will go in for competitive bids at sub-station level or town level in order to:
- a) promote transparency
  - b) encourage local entrepreneurship
  - c) have greater flexibility
  - d) obtain employee participation and cooperation
  - e) achieve greater efficiency
  - f) realize higher revenues
- 4) If the government comes forward with effective and verifiable action on the demands made, then Lok Satta calls for strong and sustained popular vigilance to monitor improvement. If the government and AP Transco fail to meet the performance standards, Lok Satta will urge people to resort to non-cooperation to force improvement in Transco's management and ensure greater accountability.
- 5) In the event the government and AP Transco meet the performance standards as demanded, then and then alone they would be reasonable in seeking public cooperation and understanding. In that case, any future tariff revision should be based on Table 38 and not the schedule in Table 53 of APERC order, since it is based on the need of AP Transco to raise additional revenues for the whole year 2000-2001 in ten months from June 2000 - March 2001. In effect, the tariff increases now ordered, and modified by the government subsidy, will automatically ensure additional revenues in the next year 2001-2002 over the current year as the tariffs will be applicable to twelve full months in the next year.
- 6) Lok Satta is prepared to demonstrate efficiency gains in a few substations on pilot basis with the cooperation of government and AP Transco and support of the public and employees.
- 7) If the AP Govt. / AP Transco fail to give firm written and irrevocable commitments on the above three issues and fail to furnish credible and verifiable information by 31 July, Lok Satta will have no option but to give a call for non cooperation. The people are not only consumers, but are also the owners of the public utilities. AP Transco and government have singularly failed to improve efficiency and performance, and reduce corruption, thefts and losses over the years. In 1998-99, they claimed a deficit of Rs.2400 crores in AP Transco, and T & D losses (both technical and commercial) to a tune of 31%.

Tariffs had been raised, and yet in 1999-2000 they claimed a deficit of Rs.3700 crores and T & D losses to a tune of over 37%. Further tariff revision has been granted by APERC. The people cannot accept such criminal inefficiency and connivance in theft and losses. If the government fails to discharge its duties, the people are perfectly right in refusing to pay the bills and in general resort to non cooperation and enforce accountability.

If the government and AP Transco fail to respond to our appeals and do not come forward with a verifiable, time-bound, concrete plan of action before 31 July 2000, we, as people will be well within our rights to assert our sovereignty and take direct action to set things right.

Keeping these factors in mind, Lok Satta is releasing the people's charter of demands to resolve the power sector crisis. We appeal to all sections of the public to collectively monitor the performance of government and AP Transco and assert our sovereign right as citizens to enforce accountability of those who are entrusted with the management of power sector on our behalf. This is time for thoughtful and resolute action, irrespective of political and partisan differences.

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