

Comments and Alternate Proposals on : “Towards a ‘People’s Plan for Power Reforms”

(T.L.Sankar, ASCI, Hyd., 18-6-2002)

By

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T. L. Sankar.'s "Towards a People's Plan for Power Reforms", is a refreshing response to the current flow of the “reforms” debate in the power sector. As the former Chairman of the A.P. State Electricity Board, an energy expert and an experienced administrator, T.L.Sankar has attempted to look at the problems involved from different angles and evolve a people-friendly plan for the electricity sector in AP where the World Bank led reforms have got stuck with people, particularly the farmers, resisting it.

I

It is good to read about “accessibility” and “affordability”, long forgotten words in the “reforms” process obsessed with “cost to serve” and withdrawal of subsidies (“the days of ‘free lunches are over””). Sankar defines ‘accessibility’ as: "to ensure that all households and all pumpsets have electricity supplies”, and “affordability” as: "the ‘poor’ get power for their household and production needs at affordable prices”. He further points out that: “...70-80% of the consumers fall under the category of “poor”, who get subsidised power supply for household and agricultural uses. In addition there is significant unmet demand. The needs of this very large section of society not having access to electricity cannot be ignored any longer.” In the following we shall attempt to examine to what extent this laudable exercise by Sankar is able to meet the challenge. We will also try to explore alternative possibilities.

Agriculture and domestic consumers are the two main categories of subsidised consumers. Let us first discuss the case of agriculture:

AGRICULTURE:

Estimation of Agricultural Consumption:

Sankar observes that agricultural consumption forms 35.1% of the total consumption. (P.5, para3). This is rather surprising. According to the submission by APTRANSCO, approved by the APERC for the year 2002-03 total quantity of power to be purchased is 39,529 MU also quoted in the Annexure –I of the article). The APERC has approved an agricultural consumption of 9936 MU for the current year. This amounts to 25.1% of the total purchase of power by APTRANSCO and 35% of sales by the 4 DISCOMs (total sales amounting to 28309 MU).

The contention of various farmers organizations before the Regulatory Commission has been that since there was no metering much of the pilferage of power by various categories of consumers (including agricultural) have been included in agricultural consumption; a point conceded by TRANSCO authorities themselves in their submissions before the Commission (Hearing for the year 2000-01). It has been argued that many of the agricultural services are not in operation (25 to 50% depending on the

season) but are retained by farmers as it is difficult to get a new connection. It is thus estimated that the total agricultural consumption in a year could not be more than 4,500 MU to 6,500MU. A study by the National productivity Council also confirmed these estimates and was thus deliberately suppressed by the TRANSCO authorities. **A census exercise on the issue is underway and one has to await the results. In the meantime, it can be safely assumed that the agricultural consumption in AP is between 15 to 20% of the total consumption of power.**

Taking agricultural consumption to be 20% of 39529MU, this is equivalent to 7906MU. That in turn would be 91% of the figure of 8669 MU calculated by Sankar to be necessary to be purchased by APTRANSCO to enable the DISCOMS to supply 7000 MU of power to the agriculture sector. If a ceiling limit of consumption is fixed for concessional rate entitlement for each consumer, the hydel power generation (which is between 7000 and 8000 MU) would be more than adequate to meet the needs of the farmers. As hydel generation tends to fluctuate, it is necessary to ensure that the cheapest thermal power produced be reserved for the sector as suggested by Sankar, and supplied at a concessional tariff up to a consumption of 7000 MU.

But at what rate should the farmers be charged, if at all? This is the moot question.

Political Realities

Many farmers' organisations have been demanding "free supply of electricity" for agriculture citing Tamilnadu and lately, Punjab as examples. The main opposition parties in the state today are promising "free power" to farmers if they are elected to "power" e.g. Congress, TRS. Elections to the state assembly are only two years away. As the elections close in, the ruling party (Telugu Desam) which has been vehemently dismissing all such talk as populist and unfeasible may suddenly make a volte face and announce some concessions. It is also not unlikely that the opposition parties, if they come to power, will start backtracking on their promise of "free power", limiting such facility to, say, users of 3 HP motors or up to usage of a certain limit, say 2,500 units or 5000 units of consumption per service.

It is necessary to delve into the likely political scenario because it is a powerful motivating factor in the decisions of the farmers to pay for usage of electrical power for agriculture.

Canal vs. Well farmers

As Sankar rightly observes: "The reality is that the agriculturists expect water to be obtained even from the sub-soil sources, at costs close to the cost paid by surface-water-using-farmers." Farmers of the upland regions argue that they are investing their own money in sinking wells, fixing motors etc. Unlike the canal irrigated farmers who pay a mere Rs.200/- per acre per season while the upland farmer has to pay through his nose for his efforts in obtaining water for his fields.

With the gross neglect of the traditional harvesting structures like tanks by the government and little scope of canal irrigation reaching them in the near future, with the destruction of forest cover (and consequent depletion of water retaining capacity of the hills and forest regions), with the low price fetched by the dry/rainfed crops, farmers of the upland areas have become **desperate** for water. Striking water in their fields makes all the difference between apparent prosperity and abysmal poverty. We say apparent because the promise of plenty is largely illusory as the farmer now gets into the vicious cycle of going deeper and deeper for water every few years, demanding more money and more power, dragging him deeper and deeper into debts.... The problem is more acute for the small and marginal farmers doing some irrigated farming.

We are thus left in a situation where the farmers using electric power have moved into a vicious cycle of unsustainable use of groundwater to the detriment of one and all. In their desperation and egged on by various political parties, the farmers are in no mood to acquiesce to a situation in which, as Sankar rightly observes: “ the cost of supply seems to keep increasing each year and therefore, the agricultural tariff will be changing in an ever-receding goal” (P.5,para 4). Therefore, before deciding the economic feasibility of the proposals it is imperative that we explore the socio-political climate and examine viable, alternate proposals in a realistic manner, as otherwise, even metering of all electric services will not work as farmers will easily learn how to make the meters non functional” (P.6, para2)

Crisis in Agricultural Sector

The agricultural sector in the country today is beset with challenges as never before in the last fifty years. Growth in the industrial and services sectors have not been adequate to absorb the large mass of surplus labour force in the rural/agricultural and related primary sector. Consequently the population directly or indirectly dependent on agriculture and living in rural areas has hovered around 70% or about 700 millions with nearly 70% of the agricultural holdings being small and marginal. Hardly 1/3rd of this area is under irrigation.

In states like Andhra Pradesh irrigation by groundwater sources has rapidly increased in the past two decades to occupy nearly 42% of the total irrigated area. With the rapid depletion of groundwater levels the cost of groundwater irrigation has been going up . Under the reforms programme, mainly inspired by the World Bank, the governments both at the Centre and the States, irrespective of party affiliations, are keen to dismantle the subsidy structure to the agriculture sector. Under a seven-year dispensation, the one billion dollar loan of the World Bank conditioned that an annual increase of 15% of subsidy to the agriculture sector should be withdrawn completely to match the cost to serve. The one-sided PPA's with IPP's, the free sale of power under the proposed Electricity Reform Bill (2001) and the rising costs of fuels all portend to an ever increasing power bill for the consumers. Under the same liberalization and globalization process subsidies on power, fertilizers etc. are sought to be removed and quota restrictions and excise duties on imported goods altogether are being withdrawn due to WTO conditionalities. Prices of various agricultural commodities have come crashing down and show little hope of rising. At the other end ,agricultural produce from various

countries are being dumped at much cheaper rates while their governments continue to subsidize their agriculture on a massive scale. President Bush of USA recently (July 2002) announced a 180 billion dollar subsidy to the agriculture sector of USA. In this bleak scenario, especially the upland farmer using electric power for irrigation finds his investment costs rising and returns going down. The noose is being tightened with withdrawal of various subsidies led by the reforms in the power sector.

The issue is thus much wider than plain power sector reforms and how to make the power sector viable. When the issues are wider naturally the solutions will also have to be sought from outside the system/paradigm of power sector. Sankar's proposals seem very reasonable both in their approach and in comparison to the actual costs of delivery of power. But then, from the point of view of the consumer, the farmers, as the following comparative table shows, they are still high, although the electricity bill forms only a fraction of the total cost of production, when compared to the actual returns of the farmers. (The World Bank sponsored study in this regard, (June, 2001) in Haryana and Andhra Pradesh, is full of inconsistencies and illogical statements, as pointed out in a separate essay on the study; the two main drawbacks being, it does not take into consideration the recurring cost of repeated sinking of borewells by farmers to cope with the rapidly decreasing ground water table and in contending that in Andhra Pradesh well irrigated agriculture is three times more income generating than canal irrigated agriculture!)

There is need to balance the bleak economics of the farm sector with the need to make the power sector viable in the long run. This calls for drastic measures both within the power sector and the agriculture sector. The practical alternatives in the context of a 'soft' state and at the moment, unaccountable 'free for all' also need to be taken into account.

APERC vs. Sankar' Proposals: Cost to the farmers

The APERC approved TRANSCO-DISCOM proposals mean a monthly bill of Rs.157/- for a farmer owing a 5 HP motor in a drought prone area. (@Rs.375/- HP/annum) (see table – I) he is charged Rs.50/- more per HP in non-DPAP areas (@Rs.425/HP or Rs.177/- per month). With a T & D loss of 28.4% admitted by the utilities @ a cost of Rs.2.38 per unit delivered to the agriculture consumer, the total cost of delivery of 5000 units of power to a 5 HP motor farmer would be Rs.11,900/-. That would amount to a subsidy of 82 to 84% (depending on whether he is in a non-DPAP area or not). To encourage farmers to go in for metering voluntarily, the metered tariff proposed is 20 paise per unit / (i.e. a mere 8.4% of cost) up to 2500 units of consumption and thereafter are charged at 50 paise per unit (21% of the cost). To a farmer in DPAP area this would mean a monthly bill or Rs.146/-, which is marginally less by Rs.11/- from the slab rate. But could increase if he consumes less power.

The proposals of the utilities must be seen in the background of diesel operated pumps. A 5 HP diesel powered pump running for 6 hours a day @ Rs.20/- per litre of diesel and consumption of one litre/hour would cost the farmer something like Rs.120/- per day or

Rs.24,000/- per year (200 days operation) which is more than double the real cost to the power supplying utilities (Rs.11,900/-). Please remember that diesel at this rate is also subsidised.

In other words farmers have been enjoying a highly subsidised source of energy for the last several decades as part of a deliberate policy of the government to encourage them to go in for use of electrically operated irrigation pumps. In doing this the governments of the day, responding to the demands of the upland farmers for assured irrigation to their lands, and unable or unwilling to provide sufficient finances for restoration and expansion of traditional water harvesting technologies or expansion of irrigation through canals, resorted to this short term and immediate result-oriented ground water tapping technology. And, as is bound to happen in a 'soft' state, there was no control or effective regulation over the tapping of precious ground water. The more concessions the state gave, more were demanded and conceded under populist pressure.

The problem has become acute in the last two decades. Land under tank irrigation has been going down while that under canal irrigation has more or less remained stagnant. In sharp contrast land under well irrigation rose sharply from 22% in 1983-84 to 42% by 1996 and continues to hover around that level. In other words, ground water harvesting which was a back up to surface irrigation has become the mainstay of our agriculture growth in the past two decades providing employment to millions in the upland areas (retarding urban migration and boosting consumption of urban industrial goods) and thus adding several thousand crores to the state exchequer and the economy of the state directly and indirectly.

The farmers argue that the huge direct subsidy on power being enjoyed by them is more than compensated by this contribution to the economy. Many of them further argue that 15 to 18% of cost to serve being charged to them today is really peanuts to the state amounting to a mere 305 crores (as declared by the utilities) and can be done away with giving them 'free' power. This should be seen in the light of the growing agricultural crisis in the country with nearly 'free' imports of various agricultural produce under the WTO dispensation, fast depleting ground water, rising costs of inputs, demands of World Bank and WTO to withdraw all subsidies, rising debts and decreasing income to the farmers of various crops.

Thus the debate on providing/withdrawing power subsidies to the Indian farmer is being raised when he is in a crisis situation! Except for a small creamy layer at the top, 80% to 90% of the farmers are in no position to pay up the actual costs of power-driven irrigated farming.

It is in this context that we feel, while it is indeed laudable that Sankar envisions accessibility of electric power to all sections of society, his scheme is **wide off the mark** when it comes to **affordability**. As can be seen from a comparison in the two tables (I and II) the cost to the farmer under Sankar's plan for the current year (FY 2002-03) would be Rs.3250/- for a 5 HP motor using farmer while under the APERC approved tariff it will only be Rs.1875/- per year (or Rs.2125/- in non DPAP areas) i.e. 42% higher

than what has been proposed by the utilities! Thus, however tempting the proposal may appear for all those desirous of doing away with the subsidies and making the power sector viable and self sustaining, the end result is 50% higher tariff (39% in non-DPAP area) for a 3 HP motor farmer and 42% higher for a 5 HP motor farmer than what is proposed by the utilities. This factor alone will ensure that it simply cannot take off! One must remember that, as per available figures, 3HP motor farmers form 51% of the pumpset farmers (IPS) and 5HP owners form another 41%. Together they constitute 92% of the IPS farmers. Only in the case of the 10HP motor using farmer does the scheme appear close to the APERC ordered rates! This while the farmers have been agitating that even the APERC rates are too high!

TABLE – 1

A COMPARATIVE STUDY OF TARIFF PROPOSALS For the FY 2002 – 03
As per APERC Tariff Order 2002 – 03

Service Load (HP)	Rate of Tariff	Cost to Consumer in Rupees		Cost to Utility At DISCOM end in Rupees	Subsidy Involved in Rs.&%
		Per Annum	Per Month		
3HP	Rs.225/HP in DPAP areas	675	56	6426	5751--89.5%
	Rs.275/HP in non-DPAP areas	825	69	6426	5601--87%
By meter	0.20 per unit upto 2500units; rest @0.50 per unit	1100	92	6426	5326--83%
5 HP*	Rs.375/HP	1875	157	Rs.11,900 @2.38*	Rs.10,029 (84%)
By Meter	0.20 per unit upto 2500units; rest @0.50 per unit	1750	146	Rs.11,900 @2.38*	Rs.10,150 (85%)
10HP	Rs.475/HP	4750	396	Rs.23,800	Rs.19,050 (80%)
By meter	0.20 per unit upto 2500units; rest @0.50 per unit	4250	354	Rs.23,800	Rs.19,550 (82%)

* It is assumed that a 5 HP motor will on average work for 200 days in a year @ 6 hours per day = 1200 hours per year @ 0.745 KWH = 4500 units or say 5000 units per service. For 3HP the annual consumption would be 2700 units; for 10 HP, it would be 10,000 units.

TABLE – 2

As per Sankar's proposals

Service Load (HP)	Rate of Tariff	Cost to Consumer		Cost to Utility at DISCOM end	Subsidy involved
		Per Annum	Per Month		
3 HP		1350	113	Rs.3051 @1.13	Rs.1701 (56%)
5 HP	50ps / unit Upto 3500 units;above that @ Rs.1/- per unit	3250	271	Rs.3955 @1.13 Rs.5805 @ 3.87 Rs.9760	Rs.6510 (67%)
10HP	-do-	5000	417	Rs.3955 @1.13 Rs.25155 @ 3.87 Rs.29110	Rs.24110(83)

TABLE – 3

OUR ALTERNATE PROPOSAL – I

To supply Hydro -power @ 30 paise per unit

Service Load (HP)	Rate of Tariff	Cost to Consumer		Cost to Utility at DISCOM end	Subsidy involved
		Per Annum	Per Month		
5 HP	30 paise per unit	125	113	Rs.11900 @2.26*	Rs.10400 (87%)
10 HP	- do -	250	271	Rs.22600	Rs.19600 (87%)

TABLE – 4

OUR ALTERNATE PROPOSAL – II

To supply free power to agriculture up to 2,500 units and the rest @ 50 paise per unit

Service Load (HP)	Rate of Tariff	Cost to Consumer		Cost to Utility at DISCOM end	Subsidy involved
		Per Annum	Per Month		
5 HP	Free upto 2500 units Rest @ 50 ps/unit	1250	104	Rs.11300 @2.26	Rs.10050 (89%)
10 HP	- do -	3750	313	Rs.22600	Rs.22750 (83%)

TABLE – 5

ALTERNATE PROPOSAL – III

To supply free power upto 5000 units per service and the rest at 50 paise per unit

Service Load (HP)	Rate of Tariff	Cost to Consumer		Cost to Utility at DISCOM end	Subsidy involved
		Per Annum	Per Month		
5 HP	Free upto 5000 units Rest @ 50 ps/unit	0	0	Rs.11300 @2.26	Rs.11300(100%)
10 HP	- do -	2500	209	Rs.22600	Rs.20100(89%)

TABLE –6
 ALTERNATE PROPOSAL – IV
 To supply free power to agriculture

Service Load (HP)	Cost to Consumer	Cost to Utility&subsidy involved per annum
3HP-2700 units	0	Rs.6102 @2.26/unit
5 HP-5000 units	0	Rs.11,300@2.26/unit
10HP-10,000 units	0	Rs.22,600@ 2.26/unit

* As per the APERC approval for FY 2002-03 Transmission losses are expected to be 8% and Distribution losses at 20.4% and agricultural consumption is supposed to be around 25% of power purchased.

According to various independent estimates agricultural consumption varies between 15 to 20% (as 25 to 50% services idle most of the year). Taking the higher figure of 20% T & D losses would be 33.4%. 4 years into the reform process and we are nowhere near the international standards of T & D losses ranging between 3 to 7%. It would therefore be reasonable to allow a transmission loss of 5%, distribution loss (technical) of 8% and pilferage of 2% = 15%. Therefore cost to serve would be 5% less than Rs.2.38/unit (2.38minus 0.12 i.e.2.26 paise per unit).

What is the alternative?

Indeed, one cannot stop with shooting down all proposals. Alternatives – short-term and long term, sustainable alternatives, have to be explored.

Short term alternatives

As long as electric power is cheap farmers will be attracted to use more of it. But given the present context, it is not fair to increase the price of electric power without accompanying rising incomes for the upland farmers. **And as Sankar suggests, it is only fair that hydro-power be reserved for them, but at what price is the question.**

It is not fair on the part of the government to raise the power tariff rates to agriculture at a time when the farmer and the farming sector is down (and almost out). Power rates will have to be nominal, as has been the policy in the past before the introduction of reforms and should be raised only when the farmers are able to get reasonable profits on their products. We have therefore to balance the need to help the farmer in his hour of distress with the equally important need to keep the power utilities afloat. As argued earlier the answer cannot be provided in the immediate future within the framework of the power utilities and its consumers. The third important actor, the state cannot absolve itself of its role so early.

- To save the situation, the farmers should be charged by meters at a very low rate of say **20 paise per unit as suggested by the APERC** in its present order (2002-03) to encourage farmers to opt for metered tariff or given a slab of free consumption say up to 2,500 or 5000 units. (see table 2,3,4) .

- This should be for a **sufficiently long period, say, ten years** as in the case of reservations for weaker sections, to be reviewed and raised or decreased according to the change in incomes of the farmers.
- This cannot be and should not be done unilaterally. However good a scheme may be, success and effectiveness depends upon, as is popularly quoted these days, the **TAP** process of functioning i.e. Transparency, Accountability and Participatory nature of the process. **The government, the representatives of the power utilities and the representatives of various farmers organisations across the state should be brought together to discuss the issues involved, freely and frankly with the APERC acting as the moderator and assisted to come to a negotiated understanding and agreement.**

Some opposition parties have raised the populist slogan of ‘free power’ for agriculture if they come to power (elections are two years away at most). We feel that although state subsidy is already high, (it will have to continue to be very high,) ‘free supply of power’ to any section, however deserving, will only be a gateway to misuse or indiscriminate use with little realization on the part of the consumer as to the real cost to the utility.

We may add a few more steps that need to be taken.....

quality power

As the World Bank study (on Haryana and A.P. farmers) showed, farmers are willing to pay higher prices for electricity, provided **quality power** is supplied to them for reasonably assured period, say 9 hours per day as this would ensure saving huge sums currently incurred in restoring burnt out motors and transformers. **But then the utilities must first ensure such a supply.**

energy audit

It has been found, (it is also an open secret), that a large amount of power is pilfered by various categories of consumers. Even the technical losses are very high. Together they constitute about one third of the power purchased by the power utilities. T & D losses range from 3 to 7% in Developed Countries including some developing countries like China. Thus there is much scope for bringing down the technical losses below 10% **Pilferage could be controlled by two methods : a) energy audit at every interface right up to the LTR level, b) affordable price of power supplied to the consumer.** Not only every point of interface but also at every service end.

reintroduction of meters

This is the **biggest** stumbling block. Farmers are highly suspicious of the Governments designs in wanting to reintroduce meters and not without reason. The World Bank, the regulation authorities and the utilities have made no secret of the fact that they would like to ensure that the price of electricity supplied to various consumers is gradually, within a span of six to seven years made equal to the ‘cost to serve’.

The farmers would not be resisting the move so fiercely across the country if it were not for the bleak economic condition due to factors beyond their control (WTO related imports, rising cost of inputs etc). **The Government (State and Central) should**

therefore ensure that farmers obtain a remunerative price for their produce before demanding higher electricity charges from them. (It should be remembered that low electric tariff was part of a deliberate state policy to encourage farmers to go in for electric pumpsets rather than press for state irrigation facilities like canals, tank restoration, lift irrigation etc. *Also govts. all over the world have been following a low food price policy by which the prices of food have been kept artificially low through administered prices so that surplus will be released for the development of other sectors. While this policy continues, govts are under pressure to withdraw the subsidies and support structures. The farmers therefore feel doubly victimised, first by a low food price policy and now by the withdrawal of subsidies*) Thus T.L.Sankar's suggestion in this regard that farmers should be assured the cheapest source of power and at a fixed determined price for a reasonably long period of time is very reasonable and practical.

As per the claims of the TRANSCO and DISCOMs delivery of power to the agriculture sector is costing it 238 paise per unit. (This will be much less if theft is reduced). It is therefore necessary to ensure prudent use of the precious commodity of electric power. A metered consumption at all levels can ensure this provided the consumer is also conscious of the fact. This involves, most importantly, assuring the farmers in writing, if need be, of guaranteed highly subsidized rate of power for a reasonable period of time, say ten years and convincing them both through negotiations with the various farm organizations and through media campaigns and meetings, to accept metered tariff. So that energy audit could be meaningful and effective, so that theft of energy, the biggest drain on the resources of the utilities and the state, could be checked.

Energy audit should also be thoroughly decentralized and localized up to the transformer level. With all the consumers under a transformer formed into a group (which informally any way they are) both to ensure the health of the transformer as well as to ensure proper energy audit. They would be helped in this endeavor by the village helper provided by the utility/distribution company. Any extra energy consumed beyond what is metered and allowable as distribution loss must be theft and can be easily located by the small fraternity using the utility. Any saving in energy in terms of distribution losses and usage of energy saving devices by the farmers should result in direct benefits to the consumers under the particular transformer. Thus the process has to be participatory, thoroughly so for the good of one and all. If power is made affordable to consumers, their co-operation can be ensured in checking wastage and pilferage at all levels. As the single largest consumer of power and that too at a highly subsidized rate, it is necessary and healthy to separate out the supply to the agriculture sector and only notionally of generation because when the farmer is in acute need of power hydel generation will not be available (in the summer months) in sufficient quantity.

non-conventional sources of energy

It is surprising that Sankar, an energy expert, does not discuss the present status and potential of 'non-conventional sources of energy'. They present a very pathetic picture. With much hype and heavy subsidies from the governments, they have gradually turned from zealous efforts to find alternate, sustainable and eco-friendly sources of energy to rich 'non-conventional' sources of tapping government subsidies! "As per the order of

the Commission APTRANSCO has to purchase all the energy generated by the non-conventional sources. This energy is purchased at the rate of Rs.3.32 per unit as per the notification issued by Government of India and accepted by the Commission.” (P.27, Tariff Order 2002-03 of APERC).

There is an urgent need to probe why non-conventional energy generation is proving to be so expensive. Tamilnadu has more than 700 MWs of wind generation capacity installed while neighboring AP with a massive coastline of over 1000 kms is able to sell only 20 MU to APTRANSCO. Similar is the very poor showing in case of mini-hydel plants (30 MU), industrial waste (40 MU), Municipal waste (9 MU) and biomass cogeneration (20 MU). Most of the energy generated from non-conventional sources in A.P. is from bio-mass (375 MU – 57%) and bagasse (205 MU – 31%). TRANSCO in its filings has not given a break up of the cost of generation from these various sources. All we know is that 663 MU is being purchased by TRANSCO from these non-conventional energy sources at Rs.3.32 per unit as per Government Orders! This forms 1.6% of the energy available (42,736 MU) and 1.7% of energy purchased by APTRANSCO (39,529 MU).

It is necessary to seriously study the failure of AP in tapping non-conventional and sustainable sources of energy and to do so economically. Bagasse has a tremendous potential as a locally generated and locally distributed cheap source of power. The government should draw up a plan to modernize all the sugar mills in the state to enable them to go in for co-generation of power and such power should be made available to the agriculture sector. Through local distribution this will cut tremendously the T & D losses and will go a long way to meet the acute shortage of power during the peak summer – which coincides with sugarcane crushing.

Long term alternatives:

Farmers demand for electric power (and more and more of it as the ground water table goes down) is basically a demand for water – an assured supply of water for his crops. So the question boils down to: how do we ensure adequate quantities of water for irrigating the fields of the upland farmers. Around 65% of the cultivable area in A.P. is unirrigated. The potential for providing assured irrigation even under questionable lift-irrigation technologies is limited to at an ambitious best of another 10%. Thus around 50 to 55% of the cultivable land in A.P. can never come under assured irrigation. Much of the focus of planning and development in India has been on areas of assured irrigation related crops. Dry land agriculture has received scant attention and funds confined mostly to lip service.

If somehow the rain-fed dry corps could get attractive prices farmers of the upland regions will be quick to opt for them instead of hunting for borewells and sowing sugarcane, paddy and coconut and such water intensive crops.

- So the first demand would be to concentrate state efforts on market support and price support for dry crops.

As much of the area is depleted of precious forest cover, the alternate strategies would demand that farmers and other rural poor of the area be made to realize the critical and crucial link between forest cover and boosting of water resources. Through video films, field visits and live demonstrations farmers of these areas should be impressed and adequately motivated to evolve strategies or restoring lost forest cover in their areas together with the other rural poor of the area. Through Vanasamrakshana Samithis and watershed management and tank restoration programmes, the water table in the areas could be boosted. There is tremendous potential in this for large scale employment and income generation for the local communities especially the poor. On paper the A.P. government is well ahead into these programmes and schemes with World Bank aid. Despite a dynamic Chief Minister (one swallow does not make a summer), whatever his motivations may be, the whole exercise had been reduced to something of a farce on the lines of the emperors' clothes...

We have thus identified the 'pull factors' for reducing consumption of power for agriculture :

- Making rainfed crops attractive for the farmer to sow through appropriate pricing of various dry crops – traditional and non-traditional (including aromatic and medicinal plants and trees) and research to evolve high yielding varieties of such crops so that such farming becomes reasonably remunerative.
- To evolve community based afforestation schemes (which would also involve a thorough reorganisation of the forest department itself) for regeneration of forest cover and thereby boost the ground water and surface water flows.
- A third alternate strategy would be to try and restore the traditional water harvesting structures – the tank systems which Sir Thomas Munroe found over a century ago in his drought survey to have been so fully constructed that there was little scope for further construction of fresh tanks in the area (Cuddapah region). Restoration schemes should be such that the ayacutdars are assisted/motivated to maintain the tanks on a sustainable basis once they are restored. It is sad to see that in many places borewells are being sunk in the ayacut of traditional tanks, at times in the tank bed itself which often suffers large scale encroachment, neglect of supply channels and repairs to sluices etc. The state government will have to step in a more proactive manner in terms of boosting ground water through proper watershed management, afforestation, tank restoration and regulation of borewells. It will also have to work out various packages of rainfed crops with reasonably attractive prices and marketing facilities. Thus, a multi – pronged approach at the political, socio – cultural and technical levels are necessary to resolve the apparently intractable problem of highly subsidized and ever increasing agricultural consumption of electric power.

Apart from the above, there is need to concentrate on a few 'push' factors as well

- Strict regulation of sinking of borewells – further borewells should be allowed only for drinking water purposes and as far as possible, only in tank bed/ayacut and river bed areas – such areas which have a scope for recharging quickly.
- Attractive incentives to induce farmers to go in for more efficient pumpsets, frictionless foot-valves, HDPE delivery and suction pipes, installing capacitors. Including punitive measures such as surcharge for non-compliance with directives within a certain period. According to experts (AKN Reddy et al) this could result in a saving of 15 to 20% of energy consumption.

II

DOMESTIC CONSUMPTION :

The Prime Minister, Mr. Vajpayee in his presidential address at the Chief Ministers' Conference on power reforms on 3rd March, 2001 stated that 40% of our population that is over 400 million people till date have no access to electricity! Either there is no supply in the area or they simply cannot afford it. It is another story that those who have access but cannot afford, tap power directly from the line. It is to try and cater to this bottom section of the population and legitimize their minimal usage that the Government of Tamilnadu thoughtfully introduced the scheme of one free bulb connection per poor household several years ago.

In Andhra Pradesh, as per the APERC tariff order 2002-03 there are 10.7 million domestic consumers. For a population of 76.7 million (2001 census) at 5 persons per household that works out to 15.34 million households. That would mean 70% of the households are able to access electricity. In numbers we still have to provide electric connections to 46 lakh households. The total domestic consumption is estimated by the above tariff order to be 7496 MU for 2002-03. An analysis of the consumption pattern as per the data provided is as follows :

TABLE – 7 Domestic Consumption:

S.No.	Category range	Consumption per Annum MU	% of Consumption	No of Consumers* (in Millions)
	Consumption per month			
				(2002-03)
01.	0 – 50	4183	56	6.653 (62%)
02.	51 – 100	1599	21	2.311 (22%)
03.	101 – 200	1047	14	1.184 (11%)
04.	201 – 300	302	4	0.343 (3%)
05.	301 – 400	135	2	0.118 (1%)
06.	400 +	230	3	0.091 (1%)
Total		7496	100	10.70 (100%)

* projected on basis of data of 2000-01 submitted by APTRANSCO to APERC

TABLE – 8
DOMESTIC TARIFF PROPOSALS AND THEIR IMPACT ON CONSUMERS
FY 2002-03

S.No	Consumption Units per Month	APERC Order		Sankar's proposal		Our Proposal	
		Rate Rs./Unit	Bill per month Rs./Unit	Rate Rs./Unit	Bill per month	Rate Rs./Unit	Bill per month
01.	25	1.45	37	1.30	33	0.40	10
02.	50	1.45	73	1.30	65	1.60	50
03.	100	2.80	213	3.87	387	3.00	200
04.	200	3.05	518	3.87	774	3.00	500
05.	300	4.75	993	3.87	1161	5.00	1500*
06.	400	5.50	1543	3.87	1548	5.00	2000*

* non- telescopic

Thus 95% of the consumers fall in consumption below 200 units per month belonging to lower income households needing some concessional tariff. It must be recognized that 62% of the total consumers consuming 56% of domestic consumption are in the below 50 units per month consuming category. That would be two bulbs of 100 watts for 6 hours and a ceiling fan for 12 hours per day in a month. Sankar demarcates this category for special extra concessional service at 1.30 per unit i.e. 1/3rd the cost to serve. And the rest, he expects to pay the average cost to the utility at Rs.3.87 per unit. This implies now significant relief for the category of consumers below 50 units per month (Rs.65/- per month) compared to the APERC tariff- See table8 . There is steep increase in the 100 units category (45%) and 300 units category (14.5%). But more are less the same in the 400 unit consuming category.

Although the structure of Sankar's proposals is positive, we feel there is a social and economic need to further differentiate the consumer categories into four levels. Criteria for two were suggested by Sankar. The poorest of the poor, who can still afford to have a home of their own will try to make do with a single bulb.

TABLE – 9
REVENUE REALISATION AS PER VARIOUS TARIFF PROPOSALS FY 2002-03

S.No.	Consumption Range (units)	Total Consumption (in MU)	REVENUE REALISATION (Rs. In Crores)		
			As per APERC Order	Sankar's Proposal	Our Proposal
01.	0 - 25	1394	202.13	181.22	55.76
02.	26 - 50	2789	404.41	362.57	432.92
03.	51 - 100	1599	432.06	618.81	456.50
04.	101 – 200	1047	308.38	405.19	302.26
05.	201 – 300	302	128.62	116.87	151.00*
06.	301 – 400	135	70.61	52.25	67.50*
07.	400 +	230	110.01	89.01	115.00*
Total		7496	1656.22	1825.92	1580.24

* Telescopic tariff not applied for consumption above 200 units per month

TABLE – 10A

DOMESTIC CONSUMPTION AND MONTHLY BILLING IN FY 2007 – 08

S.No.	Consumption Range (units)	Sankar's proposal		Our Proposal	
		Rate of Tariff Rs./Unit	Bill per month (in Rs.)	Rate of Tariff Rs./Unit	Bill per month (in Rs.)
01.	25	1.58	40	0.40	10
02.	50	1.58	80	1.60	50
03.	100	4.49	449	4.00	250
04.	200	4.49	898	4.00	650
05.	300	4.49	1347	5.00	1500*
06.	400	4.49	1796	5.00	2000*

* non – telescopic billing

TABLE - 10B

CATEGORYWISE TOTAL DOMESTIC CONSUMPTION AND REVENUE COLLECTION ESTIMATES, FY 2007 – 08

S.No	Consumption Range (in Units)	No.of Consumers (in Millions)	%	Total Consumption (in MU)	%	Sankar's proposal		Our Proposal	
						Tariff Rate Rs./Unit	Revenue (in Crores)	Tariff Rate Rs./Unit	Revenue (in Crores)
01.	0 - 25	2.33	17.6	1400	14	1.58	221.2	0.40	56.00
02.	26 - 50	4.67	35.4	2800	29	1.58	442.4	1.60	433.99
03.	51 – 100	3.43	26.0	3011	31	4.49	1351.9	4.00	1152.95
04.	101 - 200	1.85	14.0	1629	17	4.49	731.4	4.00	623.85
05.	201 - 300	0.53	4.0	389	4	4.49	174.7	6.00	233.40*
06.	301 - 400	0.26	2.0	194	2	4.49	87.1	6.00	116.40*
07.	400 +	0.14	1.0	291	3	4.49	130.7	6.00	174.60*
Total		13.21	100	9714	100		3139.4		2791.19

• non – telescopic billing

TABLE – 11 A

DOMESTIC CONSUMPTION AND MONTHLY BILLING IN FY 2012 – 13

S.No.	Consumption Range (units)	Sankar's proposal		Our Proposal	
		Rate of Tariff Rs./Unit	Bill per month (in Rs.)	Rate of Tariff Rs./Unit	Bill per month (in Rs.)
01.	25	1.92	48	0.40	10
02.	50	1.92	96	1.60	50
03.	100	4.71	471	5.00	300
04.	200	4.71	942	5.00	800
05.	300	4.71	1413	7.00	2100*
06.	400	4.71	1884	7.00	2800*

* non – telescopic billing

TABLE – 11 B
CATEGORYWISE TOTAL DOMESTIC CONSUMPTION AND REVENUE COLLECTION
ESTIMATES

S. No	Consumption Range (in Units)	No. of Consumers (in Millions)	%	Total Consumption (in MU)	%	Sankar's proposal		Our Proposal	
						Tariff Rate Rs./Unit	Revenue (in Crores)	Tariff Rate Rs./Unit	Revenue (in Crores)
01.	0 - 25	2.33	13.5	1400	11	1.92	268.8	0.40	56.00
02.	26 - 50	4.67	27.0	2800	22	1.92	537.6	1.60	473.99
03.	51 - 100	5.47	32.0	4389	34	4.71	2067.2	5.00	2085.10
04.	101 - 200	2.93	17.0	2582	20	4.71	1216.1	5.00	1232.40
05.	201 - 300	1.03	6.0	904	7	4.71	425.8	7.00	632.80*
06.	301 - 400	0.52	3.0	417	3	4.71	196.4	7.00	291.90*
07.	400 +	0.26	1.5	416	3	4.71	195.9	7.00	291.20*
To tal		17.21	100	12908	100		4907.8		5023.39

- non – telescopic billing

There are many such households in rural A.P. especially among the dalit communities. Therefore there is need to separate out a further category of consumers who need to be served, as a bounden duty of the state for its failure to uplift their condition. This category of single bulb consumers (or at best two bulbs) could be offered free supply of power. But as stated earlier anything free' has a tendency to be misused. And a precious commodity like electric power, essential as it is, must be used judiciously. Therefore it is suggested that there be a meter fixed for this service too, of users upto 25 units per month who could be charged a fixed rate of Rs. 0.40 per unit. This would mean a bill of Rs. 10/- per month which could be the minimum charge as well (see Table IX). This should be frozen for the next 10 years. Let us assume that they form 1/3rd of the consumers in the range of 0-50 units consumption per month. They would thus form 21% of the consumers while the remaining 26-50 unit consumers would still constitute 41% of the consumers. They could be charged at Rs. 1.60 per unit under telescopic billing which at first sight appears higher than the Rs. 1.30 per unit suggested by Sankar. But due to telescopic tariff actually results in a smaller bill to the customer at Rs.50 per month compared to Sankar's proposal resulting in Rs. 65/- per month . We propose that the next slab should be upto 200 units at Rs. 3/- per unit which is still a concessional tariff as it would mean a bill per month of Rs. 500/- for a 200 unit per month consumer. This appears reasonable in the current economic context for a middle class family compared to the bill of Rs.774/- as per Sankar's proposal and Rs.518/- approved by the APERC. Above 200 units of consumption per month we have proposed a tariff rate of Rs. 5/- per unit which in monthly terms works out for 300 units consumer to Rs. 1500/- compared to Sankar's Rs. 1033/- and APERC's Rs. 1180/-.

In terms of revenue to the utility as shown in Table X our proposal results in a further short fall of only Rs.75 crores compared to the APERC proposal and Rs.245 crores less collection than in Sankar's proposal. Unlike the two category system a single category telescopic tariff billing upto 200 units of consumption in a month has the attraction of

inducing the customer to use less power or atleast use it more judiciously. This is especially true of the first three categories of consumers.

In the projections for the next ten years as shown in Tables 9 & 11,

- by freezing the charges for the 0-50 unit consumers at the rates suggested
- and by moderately increasing the rates in the other two slabs from 3 to Rs. 4/- per unit (33% for 51-200 units in 5 years)
- and from 5 to Rs. 6/- by (20%) for +200 by the next five years (2007-08)
- and by the 10th year (2012-13) to increase them further by 25% from 4 to Rs.5/- for the 51 to 200 category and from Rs.6 to Rs.7/- per unit for the above 200
- the utility can still manage to get more revenue 298 crores from the consumers than proposed by Sankar by 2012-13 as shown in the Tables.

While one can make any number of attractive figurative gymnastics on paper the proof of the pudding is in the eating. To what extent the tariff proposals are accepted and complied with by the consumers. In an atmosphere where hardly 40% of the charges of power purchased is being realized by the power utilities (this is the bane of almost all power utilities across the country) there is little hope unless the consumers-the various categories of consumers actively cooperate to control theft, improvement in quality, energy audit through consumer co-operatives and curbing T & D losses.

III

IPPS AND THE FOURTH 'A'

There are, however, some very important issues, which need to be addressed directly and cannot be avoided, if one is serious about reforms in the power sector.

While there can be no two opinions about the bench mark of the three As... Availability, Accessibility and Affordability, it is surprising that Sankar has deemed it fit to ignore the present bedlam and the future disaster staring in the face of the state power sector in the form of PPAs with various IPPs to be worsened by the forthcoming Electricity Reforms Bill, 2001. *

In collusion with corrupt politicians and bureaucrats, several private power producers have succeeded in extracting unheard of concessions, subsidies and incentives from the state and central governments, all in the name of 'Development' and an extraordinary patriotic/philanthropic zeal to pull the country out of a looming power crisis [largely imaginary]. When the lending rate was around 5% these companies were guaranteed a 16% return on equity, with incentives for performance beyond 68.5% PLF when state units were crossing 90% PLF with no incentives whatsoever! The IPPs have been given guarantees and counter guarantees by the state and central governments to buy up all the power produced by them irrespective of the demand (peak load, base load etc) or to pay penalty in the form of 'deemed generation', escrow clauses. With a 'merit order dispatch' that allows only the variable cost to be taken into account (to beat the cheaper power being supplied by the state units) and passing on the burden of fluctuations in the foreign exchange component of their loans to the consumer, finally ending up with 60 to 75% higher tariff rates than that of the state units. The saturation in demand last year (2001-02) forced APTRANSCO to compel the shutting down of the Nellore unit of

APGENCO and also to order the Muddanur unit to bring down its PLF to 78% to enable it to buy the costlier power of the IPPs. The table below gives an idea of how much public money is being drained out through the PPAs of existing IPPs :

TABLE – XII
EXCESS PAYMENTS TO IPPs OVER APGENCO RATES

Year	Total Power Purchased (in MUs) from IPPs	Cost per Unit (in Rs) IPP average rate	Total Cost (in Crores)	Cost per Unit (in Rs) APGENCO Average rate	Total Cost of Energy sold By IPPs @ APGENCO Rate (in Crores)	Excess paid to IPPs for sale of power (in Crores)	Incentives paid (in Crores)
2001	3852	2.67	1029.7	1.53	589.36	440.34	73.3
2002	5305	2.55	1354.2	1.59	843.50	510.70	35.9*
2003	7337	2.13	1563.8	1.61	1181.26	382.54	34.9**
Total	16,494		3947.7		2614.12	1333.58	144.1

* The figures for incentives pertains only to the first half of 2003

** This figure is difficult to believe, especially since the incentive rates in the various PPAs continue at the old rates for PLF beyond 68.5%

Source : APTRANSCO – ARR for FY 2002, Sixty Schedule PP116 to 120.

With much money being spent by these IPPs for “educating the politicians and administrators” on the merits of their projects (a la Enron) even a pithead unit like the one Proposed by M/SBPL power projects (AP) Ltd, was estimated to cost over 5 crores per MW while a private factory in Chittoor district installed a captive 5MW generation plant as late as in 2000 at a cost of 2.0 crores per MW! So, one can imagine the amount of padding and plain bribery going on at various levels with everybody joining the choir of the sacred “power Reforms” and the “unbundling exercises”.

With the steep rise in naphtha the PPAs with many IPPs had to be revised to make them gas based (GVK,Spectrum, Lanco and BSES). GAIL has not been able to give firm commitment of gas supply to M/S BSES. But BSES need not worry too much on that count because the PPA allows them to go in for alternate fuel (naphtha or whatever) and all the power produced at the high cost will be purchased by APTRANSCO to be passed on to the consumer, or government. Now M/S Vemagiri, Gouthami, Konaseema Oakwell, GVK Expansion are all set to add another 2, 500MWs of power supposedly gas based. Where are they going to get the gas from? They can of course switch back to Naphtha if there is no gas at the cost of APTRANSCO. Moreover, the price of gas and other petroleum products are being released from Government control to be on par with international prices which means the price of power produced with gas is going to rise on this count too. With the expected growth in demand for power (especially costly power from APTRANSCO) at 8 to 10% per annum no where in sight, the overall stagnancy in the economy of the state and the country is leading to a glut in demand except at peak times.

In other words, there are no takers for the costly power of APTRANSCO. Most new industrial units are preferring to have their own captive generating units and lately the Railways have threatened to go in for their own captive generation. To add to their woes,

the new Electricity Reforms Bill, 2001 proposes free production and sale of power with state agencies reduced to only collecting wheeling charges. Indeed it is the agenda of all state power boards and Regulatory Commissions, as advised by the World Bank, to progressively reduce the stake of the state units and increase that of the private producers from the current near zero level to at least 33% of production.

No one in power seems to be giving a thought to the basic question : when privately generated power is available at cheaper rates, who will buy power from the state agencies (burdened with costly power from IPPs and cross subsidies? Already, the APTRANSCO has compelled APGENCO to shut down its Nellore Unit and the Muddanur unit, a national award winner for best performance (over 90% PLF) to reduce its performance to below 80% to enable APTRANSCO to buy power from IPPs to which it has committed itself under the various PPAs. One shudders to think what will be the fate of TRANSCO if the Railways also walk out on them. There are no answers to these question even in the “transparent” public hearings of the APERC. (For instance as to why power is being purchased from the LVS power project at over Rs.9/- per unit). Who is responsible for this mess?

The state has been divided into four DISCOMs for distribution. There is no explanation as to the rationale in this division. Now all the muck of heavy losses in distribution is sought to be passed on to them. Four years of the reform process have gone. The state units are unable to recover more than 40 to 45% of the bill for the power supplied.

No reform process is likely to succeed, however well intentioned and innovative it may be (like the present proposal) unless we come to grips with this basic ailment – corruption and lack of accountability –at all levels. There is also no point in sitting and wailing. We have to begin and begin somewhere. Drastic measures are required and fresh thinking is demanded, if we have to get out of this mess for which we are all responsible in some measure or other.

So I would like to add a fourth ‘A’ to the three proposed by TL Sankar Viz. Availability, Accessibility and Affordability, and that is Accountability, the most critical of all the A s.

There seems to be a general ‘free for all’ for the powers that be: the politicians, the bureaucrats and technocrats, power companies (national and international), contractors and brokers of all sorts. This is a ‘no holds barred’ game and the goal is open and blatant loot . Crores of rupees have exchanged hands in licensing various IPPs to produce power. The PPAs have been written and rewritten to suit the vested interests. With the Chief Minister and the World Bank calling the tune, the Regulatory Commission has been reduced to a toothless tiger, occasionally growling and snarling. There is an urgent need to expose the guilty and bring them to book. There is an urgent patriotic duty to expose all the anti-people PPAs and rewrite them keeping public interest in view. Without catching the bull by the horns we will not be able to get out of the mess we have landed in no further explanation is necessary on this score apart from the classic case of ENRON, whose sudden collapse was only a God sent grace for the MSEB, Government

of Maharashtra, Gov't of India and the public at large, although they are not yet (and not likely to be) completely out of the woods on this score.

Transparency and accountability must be ensured sincerely and the corrupt brought to book. Firstly, those responsible for the messy affair of one side PPAs with IPPs must be brought to book and the PPAs rewritten in a just and fair manner.

Most important of all, the anti-people and one-sided PPAs must be renegotiated keeping the interests of one and all in view. The forthcoming electricity reforms bill of 2001 and the privatization of distribution processes should be transparently debated with all concerned and affected sections using the yardstick of Availability, Accessibility, Affordability, Accountability and Sustainability. A culture of accountability needs to be generated for without this, large scale pilferage at all levels will continue to plague the system. An example in this direction must be set by those in the top echelons – the senior politicians, bureaucrats and technical personnel and the social workers.