

To, The Chief Minister, Government of Andhra Pradesh, A p Secretariat, Hyderabad	From, M. Thimma Reddy, Convenor, People's Monitoring Group on Electricity Regulation, 1-33/1, Prabhat Nagar Colony, Near Ganga Hospital, Chaitanyapuri, Hyderabad - 60
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Date: 28-07-2014

Dear Sir;

Sub:- Comments/suggestions on GoAP's White Paper on Power Sector in Andhra Pradesh released on 2<sup>nd</sup> July, 2014.

We welcome the initiative to place a White Paper on power sector in the state before the public and seek feedback. At the same time to be meaningful the said white paper should have been comprehensive based on analysis of performance of the sector in the recent past and on the basis of this analysis chalk out future plans to meet the state's power needs. A look at the present White Paper shows that it was put together in haste. As the document is meant to address future power needs of the state not just the immediate power crunch it should have analysed in reasonable detail, as was done in 1997-98 when the Telugu Desam Party was in power in the past, issues in power generation, transmission, distribution, inefficiencies in power consumption, inefficiencies in service delivery and financial health of DISCOMs and the steps to be taken to take the sector to a healthy situation. The white paper should also have specified the date by which feedback is to be provided. In the absence of such date there will be doubts as to how seriously feedback will be received.

Already a slew of announcements were made besides the promises made in the white paper like taking up SCADA in different parts of the state, Rs. 1000 crore investment through Energy Efficiency Services Limited (EESL), and a ten point plan that mostly includes capacity addition and other supply side options.

Electricity has a vital role in economic development. It is needed as an input in industrial and agriculture sector and as an important service provider in the household sector. At the same time there are limits to the extent to which electricity generation could be expanded. Constraints in domestic availability of fuels as well as climate change concerns demand an alternate approach to power sector issues. Already import bill of fuels, both coal and petroleum products, has impacted current account deficit. And even in terms of national energy security dependence on imported fuels need to be brought down. At the same time there are limits to extraction of these within the country. The spectre of global warming is an important factor in present day energy planning. At global level as well as country level power sector is the biggest contributor of greenhouse gases, particularly carbon dioxide. At the global level India stands third after USA and China in carbon emissions. Within India united Andhra Pradesh (AP) stands third. It is estimated that 99,046 MU of electricity would be procured during the financial year 2014-15 in Andhra Pradesh (AP). 84% of this power would come from coal based thermal power plants, 4% from gas based power plants and 2% from nuclear plants. While 7% of this power would come from hydel units the renewable energy units would contribute only 3%. International pressure is also growing on India to accept mandatory caps on GHG emissions.

Given this context business as usual approach to electricity issues in the state will no more be useful. This demands new programme where by more and more services or products are extracted from a given unit of electricity, and even this electricity is generated with least adverse impact on environment and local communities. Optimal utilization of renewable energy and effective implementation of energy efficiency, energy conservation and demand side management measures shall be part of new initiatives. In sum we need to follow integrated resource planning approach in meeting electricity needs of the state. This planning shall be preceded by comprehensive examination of issues facing the power sector in the state including proper demand forecast and examination of options to meet this demand.

## **Options in power generation**

### **Conventional Power Plants:**

At the time of releasing the White Paper on power sector all parts of the state were undergoing power cuts. This drew more attention to new capacity addition to overcome these power cuts. But the fact is that at that particular moment power generation capacity in the state was higher than peak demand. Then to a large extent the cause for power cuts lay in not being able to utilize the existing capacity but not in the absence of generation capacity. Also, given the mainstream discourse the emphasis was on new capacity addition. This is misleading.

More than 2,000 MW capacity of gas based power plants in the state are lying idle due to decline in natural gas availability from RIL's KG Basin fields. It declined from 60 MMSCMD to 12 MMSCMD. While RIL attributed this decline to ingress of sand and water in to the wells the Ministry of Petroleum and Natural Gas as well as the Director General of Hydrocarbons did not accept the same. In the meantime ONGC complained that RIL was stealing gas from fields allotted to it. All these raise doubts about the stand taken by RIL. There are also allegations that RIL was deliberately bringing down gas production to put pressure on the central government to hike gas prices. Had there been no decline in natural gas supply the present power crisis might not have been there. The GoAP shall take all steps to see that natural gas supply is restored to gas based power plants in the state.

Besides this the impending natural gas price hike to \$ 8.4 per mBtu of gas is going to pose another danger. At this gas price cost of power may even become uneconomical. This natural gas price has been resorted to in response to RIL and its partners' demand that this natural gas be priced according to imported RLNG. Nowhere in the world domestically produced natural gas price is determined like this. RIL is operating gas fields in USA also. There it is charging less than \$ 3 per mBtu of gas but in India it is demanding unreasonably high price. Despite Supreme Court directions RIL is not cooperating with CAG in assessing the expenditure incurred in RIL's

KG Basin D6 field. The BJP led central government is reported to be examining this issue. GoAP shall use its good offices to see that some sense prevails on this front.

1,000 MW coal based thermal power plant of Hinduja's near Visakhapatnam and 500 MW coal based thermal plant of BPL near Ramagundam are pending for nearly two decades. These plants were also provided with fuel linkage. Newspaper reports indicate that Hinduja's plant is ready but generation is being delayed due to delay in finalizing the PPA. GoAP shall take steps to see that these plants go on stream soon. Had these plants were in operation as originally envisaged the present put cuts might have been avoided. It has also to be seen that the PPA with Hinduja plant shall be in accordance with the sovereign guarantee provided by the central government at the time of its selection.

The White Paper also proposes new capacity addition by APGENCO and procurement through open bidding process. In fact there are proposals to set up nearly 100 power plants with an aggregate capacity of nearly 70,000 MW. (<http://www.pmger.org/articles/Note on Power Generation Capacity Addition in Andhra Pradesh.pdf>) In Nellore district alone 24 coal based power plants with aggregate capacity of 23,654 MW are proposed to be set up within a radius of 20 miles. More than 70% of the newly proposed capacity is from coal based plants. In the background of climate change concerns and threat to livelihoods of local communities it is important to review the necessity of this capacity addition.

Most of these proposed power plants obtained environmental clearance through doubtful processes. As multiple power plants are coming up within the same locality it is important to take up cumulative Environment Impact Assessment.

For the last four years people of Sompeta in Srikakulam district are agitating against sting of 2640 MW coal based thermal power plant by Nagarjuna Construction Company Ltd (NCC) in the ecologically sensitive wetland area. The National Green Tribunal (NGT) cancelled the

environmental clearance issued to the proposed power plant. We request the GoAP to withdraw G.O. Ms. No. 1107 Revenue Assignment –I Department dated 15.09.2008 transferring 'Beela' land in Sompeta mandal of Srikakulam district to Nagarjuna Construction Company Ltd to set up a coal based thermal plant.

Immediately after coming to power the present GoAP decided not honour PPAs with APGENCO's new units which were not cleared by APERC. While not going in to pros and cons of this decision we request the state government to review cost of these new units of APGENCO. CAG which had examined some of these plants has found that capital cost was inflated by about 20%. This was attributed to questionable selection of contractors to execute these plants.

In fact there is scope to increasing power generation from the existing power plants through improving their efficiency. The Bureau of Energy Efficiency selected several power plants to increase power generation efficiency under Perform Achieve Trade (PAT) scheme. Beyond identifying the plants nothings seems to have happened. This activity needs to be taken forward.

### **Renewable energy:**

The White Paper states that the GoAP intends to formulate comprehensive solar and wind energy policies to encourage untapped renewable energy sources. While welcoming this we would like to state that the policy formulation shall be preceded by proper estimation of potential of these renewable energy sources. Over estimation will lead to unreasonable demands from developers for incentives and also stranded capacities. This is particularly the case with wind energy.

There is also need for transparency in allotment of lands to wind energy developers. In the past Mr. Payyavula Kesav, TDP leader from Anantapur district, raised several issues in land allotment to wind energy developers in Anantapur district.

Wind energy price decided by the APERC in 2012 need to be reviewed. Wind energy price was increased from Rs. 3.50 per unit to Rs. 4.70 per unit of electricity generated (34% increase) in violation of regulatory norms. This burden has to be borne by electricity consumers in the state in the form of higher electricity charges and the state government in the form of increased subsidy burden.

A large number of wind energy plants must have completed 10 years of operation and must have recovered their capital costs. During these 10 years there are significant developments on the technology front and more efficient wind turbines have come up. The old wind plants may be replaced with new ones.

Solar energy is suitable for decentralized, small scale plants. Generation of electricity near the consumers also leads to lower T&D costs/losses. There is need to promote roof top PV plants in the place of MW scale plants. In developed countries like Germany more than 80% of the capacity of solar energy is from roof top solar PV plants. The present GoAP proposes to set up MW scale plants running up to 1000 MW in Guntur and Anantapur districts. This should be replaced by promotion of roof top solar PV units.

Electricity consumption by households in higher slabs is growing faster and this consumption is leading to procurement of high cost power. The electricity tariff for these households may be linked to solar power so that these households will go in for solar energy to meet part of their electricity needs. At the same time procedures for setting up roof top, grid connected PV plants through net metering need to be simplified. The existing cumbersome procedure is discouraging households from going in for roof top solar PV units.

Roof top solar PV plants shall be made mandatory for commercial buildings like malls/shopping complexes.

In AP morning peak is higher than evening peak. One of the reasons for this phenomenon is use of electricity to heat water. In order to reduce electricity consumption during this period, solar water heaters shall be made mandatory for houses of 1000 SFT and above. Over the period cost of solar water heaters has come down and this cost can be recovered within a short time.

Solar power could be promoted in the agriculture sector as availability of solar energy matches the requirement of farmers with well irrigation. GoAP is also talking about providing solar energy to agriculture sector/pump sets. It would be better set up solar plants at the feeder level. Feeder level plants help in maintaining voltages. Farmers do not need electricity throughout the year. Whenever surplus power is available from these plants the same could be fed in to the grid. This also helps in recovering a part of costs of these solar plants.

Along with this exploitation of ground water shall be regulated with the participation of communities. Indiscriminate drilling of bore wells is leading to depletion of ground water. Declining ground water level also leads to high cost of bore wells as well as increased power consumption to lift water from greater depths. Often farmers are going bankrupt and resorting to suicides due to failed bore wells.

### **Demand Side Management:**

Huge investments proposed to be made in improving efficiency of conventional power plants and in promotion of renewable energy sources will go waste if they are not accompanied by implementation of equally efficient energy efficiency, energy conservation measures and DSM measures. In a situation where high T&D losses and high end use inefficiencies prevail additional capacity addition amounts to pouring water in to leaking bucket. The demand side management measures are also relevant in the context of climate change and resource scarcity. Energy efficiency and demand side measures cost least and have potential larger than the combined addition from Nuclear, Hydro, and Gas based power plants. But it is getting disproportionately lower attention. Attention should be paid to energy services (light, heat, air circulation, weather conditioning, etc.) rather than energy supply. One Watt saved was equivalent to generation of 1.4-1.6 MW. At the same time end use efficiency options cost only

25-40% of generation. It is a win-win-win option for Consumer, Utility, and Society. Such policies/interventions shall not be limited to small and isolated pilots and shall encompass all consumer categories extensively. These DSM measures can be considered as an alternative to capacity expansion. The DSM measures have saving potential of about 20 to 30% across all consumer categories. As the present peak electricity shortage is around 10% the present power cuts as well as future generation capacity addition could be avoided if the DSM measures were implemented effectively.

There is scope to bring down transmission and distribution (T&D) losses. While in EPDCL T&D losses are less than 8% they are nearly 12% in SPDCL area. By bringing down T&D losses in SPDCL to the level of EPDCL considerable power generation could be saved. If we take in to account the fact that agriculture consumption in the state is being inflated and to that extent T&D losses are being underestimated the benefits that could accrue through bringing down actual T&D losses are quite substantial.

Agriculture sector consumes nearly one fourth of electricity supplied in the state. As part of free power supply to farmers four DSM measures were made mandatory to be eligible for free power. Because of lack of support services at the ground level and lack of monitoring even after 10 years of this programme not even 10% of the farmers have taken up even cheapest of the four measures – installation of capacitors. Pilot programmes have shown that through installation of capacitors alone about 10% of the load can be saved. GoAP shall pay greater attention to implementation of these DSM measures in agriculture sector. Here it is also important to note that for success of these interventions organisation of farmers is as important as technical solutions.

Among the DSM measures to be taken up in agricultures sector replacing inefficient motors with efficient motors has greater scope to reduce electricity consumption in agriculture sector. As reduced electricity consumption benefits both DISCOMs (through reduced sales to agriculture and increased sales to metered consumers) and state government (through reduced

subsidy burden) they should take pro active steps in replacing inefficient motors with efficient motors.

Over the last few years more than Rs. 2,500 crore were spent on HVDS in agriculture sector. According to news paper reports EPDCL alone is planning to spend Rs. 300 crore on this scheme during the present year. It is high time that this programme is reviewed thoroughly. DSM measures need to be implemented aggressively where HVDS was implemented, otherwise investment made in to it will go waste.

In the absence of meters at each pump set measuring electricity consumption in agriculture sector has become a contentious issue. This could be successfully addressed by installing meters at distribution transformers (DTR) serving agriculture consumers. Installing and maintaining meters at about a lakh of DTRs should be easier than doing the same at more than 13 lakh pump sets in the state.

It is heartening to note that the state government has acknowledged the magnitude and seriousness of electrical accidents, both fatal and non-fatal, taking place in the state. While improper maintenance of distribution infrastructure in rural areas as mentioned in the White Paper is one of the important reasons for this, absence of technical manpower in the villages to attend to the problems of farmers and rural households is another important reason. Nearly 4,000 line man/junior line man posts are lying vacant since a long time. In the absence of technical help from DISCOMs farmers/rural households are trying to rectify the problems themselves and in the process succumbing to accidents. ([www.pmger.org/articles/martyrs without a cause-25oct.doc](http://www.pmger.org/articles/martyrs_without_a_cause-25oct.doc)) Improving distribution network in rural areas and filling all the vacancies does not cost much. They in turn help to bring down T&D losses. In fact whatever investments made in to this will give healthy returns. Domestic and commercial sectors also have huge potential for electricity savings. It was estimated that about 70% of infrastructure in these sectors in 2030 (buildings, appliances etc) would be built between now and 2030 and it is important to act now, so that we were not

caught in an inefficiency trap. Super efficient appliances shall be promoted in these sectors. Awareness building among consumers, architects, and builders on these opportunities would be of great help.

Though some initiatives were taken up in industrial sector like Perform, Achieve Trade (PAT) Scheme under National Mission on Enhanced Energy Efficiency nothing much seems to have happened at the ground level. There is lack of coordination among national and state level nodal agencies and designated consumers/industries at the ground level. Out 15,000 high tension industrial consumers in the united AP only 38 industries were identified under this scheme. Even these identified industrial consumers are not appraised about the scheme properly. It is important to take up concerted action involving all stakeholders to achieve energy savings in this sector.

In the case of energy efficiency and energy conservation the need of the hour is to create awareness among consumers of all categories on opportunities available. Lack of proper and actionable information is coming in the way of successful take off of these initiatives. Strengthening nodal agency is an important step in this direction.

### **Fairness in electricity supply:**

The White Paper states that the GoAP is committed to provide quality, reliable and affordable 24 hour power supply to all households through out the state. In practice even when there were no official power cuts in the state many villages received power for less than 12 hours round the year. They received power from 6 pm to 6 am only. Taking this in to account uninterrupted shall not mean 24 hour supply in urban areas and major villages and 12 hour supply in other villages. Consumers in all habitations - urban and rural - shall be treated equally. When load shedding is declared villagers will be at the receiving end. During such situations while 2 hour power cut is being imposed on major urban areas/cities most of the villages have to undergo more than 12 hours power cut. Rural households are being forced to bear unequal burden of power deficit/cuts. There shall be fairness in load shedding. Load shedding may be

imposed on the basis of aggregate technical and commercial (ATC) losses. Public consultations shall be held to decide load shedding schedule. To make these consultations meaningful all necessary information shall be made available to the public.

### **Strengthen Governance:**

While rolling out activities to achieve objectives enunciated in the White Paper governance takes centre stage. Roles and responsibilities of all agencies involved in implementation of the policies shall be clear and unambiguous. There shall be proper coordination among these agencies. Capacities of these agencies, particularly nodal agencies entrusted with responsibility of promoting energy efficiency, shall be strengthened to shoulder the responsibilities. Proper monitoring mechanisms shall also be in place to ensure effective implementation of these policies.

It is important to promote transparency in formulation of policies as well as their implementation. There are large gaps in information on power sector in the state. The White Paper also noted this fact. Without proper data effective interventions cannot be formulated. Reliable data on the sector shall be collected and made available to all stakeholders. Load surveys should be conducted on consumption patterns of all consumer categories.

The White paper stated monitoring and improving consumer satisfaction as one of the objectives. To realise this awareness among consumers on Standards of Performance (SoP) shall be created. Along with this the Consumer Grievance Redressal Forums (CGRF) shall be strengthened and consumer representatives on these Forums shall be given effective role. Multiple CGRFs shall be formed for each DISCOM and these Forums shall conduct hearings at different locations.

Electricity Regulatory Commission (ERC) has crucial role to play in effective and efficient functioning of the power sector. Experience with functioning of ERC in the state over the last 15 years is far from satisfactory. Participation, accountability and transparency were expected to

be improved with the ERC coming in to picture. But the ERC failed on all these fronts. ERC had become like extended part of the Energy Department. Autonomy of ERC shall be upheld and participation of consumers in its proceedings shall be improved. Legislative oversight of ERC shall be made effective.

Engagement with the public, we hope, will not end with bringing out this White Paper. Transparency in functioning of all agencies in the sector and effective participation of all stakeholders in governance of the sector will lead to its efficient functioning. We hope that GoAP's next steps in power sector will be based on these good governance principles.

Yours truly,

M. Thimma Reddy

Cell No: 9440312303

[Thimmanna\\_m@rediffmail.com](mailto:Thimmanna_m@rediffmail.com)

CC: Secretary to the Chief Minister

Principal Secretary, Energy Department

CMD, APTRANSCO