BEFORE THE MAHARASHTRA ELECTRICITY REGULATORY COMMISSION, MUMBAI

Comments on the CII proposal for mitigating load shedding in Pune through liquid fuel based captive generation plants of Pune industries

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Background

During April and May 2005, the peak power shortage in the state was about 4000 MW and therefore heavy load shedding was exercised in all parts of the state including major urban areas such as Pune, Nashik, Nagpur etc. Load shedding in Pune was more than 800 MWh or about 4 hours, every day then, without any power cuts during evening hours. During this period MESB approached MERC with a request to fix load shedding hours on the basis of AT&C losses. On 16th June 2005, the Commission issued the order on 'Principles and Protocols of Load Shedding'. In this order the MERC directed that total load shedding requirement be apportioned for different divisions (in urban and rural areas) based on AT&C losses for that division. As a result, load shedding in most of the major urban cities including Pune was reduced to about 1 or 2 hours per day. It was possible because of low losses and better revenue in these areas. On the other hand, rural areas continued to suffer from almost the same quantum of load shedding, which presently is about 6 to 8 hours per day and spreads over the evening peak hours as well. However, it is important to note that consumers of the same category in urban and rural areas pay the same tariff. The Order further retained HT industries on express feeders and in MIDC areas to be excluded from load shedding. This indicates that there already exists one significant level of discrimination between urban and rural areas, as well as HT industrial and other consumers.

The present CII proposal needs to be seen in this context. The proposal envisages that around 30 HT industries in Pune will generate power during load shedding hours through liquid fuel (diesel) based captive power plants. Justifiably, these industries expect that this exercise be cost neutral for them –i.e. they be compensated for high generation cost from these plants (nearly Rs. 10 / unit).

Comments on the CII proposal

We welcome the spirit behind this initiative of CII, which is aimed at overcoming the load shedding in Pune, through collective actions of consumers. But, unfortunately, due to prevailing very high oil prices, the present proposal turns out to be a very high cost solution, and hence is a questionable measure to overcome the load shedding. Before adopting this path many other alternatives as well as full implications of this proposal need to be considered. These are elaborated below.

1. **Tariff Impact on consumers:**
The following table summarizes the estimated tariff increase in p/kWh for Pune consumers as projected by CII and MSEDCL (in it's comments on the CII proposal):

Projected Tariff increase (paise / kWh) for all consumers (for total consumption)

Daily Load Shedding in Pune	CII proposal	MSEDCL response
180 MWh	12.05	14
300 MWh		23
540 MWh	37.50	41
800 MWh		61

Note: The table shows the surcharge (p/ unit) that consumers will have to pay to meet the additional cost on account of generation from liquid fuel based captive power plants.

However, there are a few major gaps in both estimates:

a. The calculations assume that all consumers (including the CPPs participating in the scheme and other HT industrial consumers) in Pune will pay this surcharge. In this proposal a relief from paying surcharge has been sought for 30 CPPs participating in the scheme. These industries being the largest industries in Pune, have a significant share in the total industrial consumption in the city. Excluding them from this exercise would reduce the consumption base that would be considered for spreading the cost to be reimbursed to the CPPs significantly. In other words, excluding CPPs from payment of the surcharge, the tariff impact on other consumers would increase significantly. However, both proposals do not estimate this increase.

b. While calculating the tariff impact / surcharge it is essential to consider one more aspect. Small and poor consumers (with say consumption of less than 30 u / month) have very different reliability considerations and total monthly financial outgo is a critical factor for these consumers. Hence, it is necessary to exclude such consumers from additional surcharge (which will amount over 30 % tariff increase for such consumers). This will increase the tariff impact on other consumers as consumption base on which surcharge is to be applied will reduce.

c. The covering letter of MSEDCL's response dated 16th November 2005 states that, "*The proposal may require formation of mini-load dispatch centre that would co-ordinate with all the CPPs regarding their output capacities during the specified hours. The extra cost of integration of the CPP to the state grid may have to be considered as pass through on Pune consumers*". However, the proposal does not account for these costs. Facilitating such power exchange (for example setting up a mini-Load Dispatch Center) and/or

providing appropriate metering arrangement for the generators will increase the costs to the consumers.

Considering these factors, realistic estimates of the surcharge in p/kWh on Pune consumers is tabulated as follows:

Daily Load Shedding in Pune	Realistic estimate of the surcharge	Additional yearly revenue from surcharge (Rs. Cr.)
180 MWh	22	52
300 MWh	36	87
540 MWh (Current level)	**59**	**147**
800 MWh	90	233

Assuming a typical household in Pune would consume about 200 units per month, according to the current tariff structure, the consumer effectively pays about Rs 2.85 /unit (excluding FOCA and Electricity Duty). With present quantum of load shedding which is roughly 540 MWh (90 MW * 6 hours) the tariff hike for domestic consumers is going to be about 20%, to avoid the load shedding of 1 hour in some divisions and 2 hours in others.

2. Operational issues in the proposal

There are many critical operational issues in the proposal that remain unaddressed.

a. Variable (Fuel) Charges
The proposal maintains that the fuel charges (Rs 10.18/kWh) would change with changes in oil prices. With recent spiky trends in oil prices, this cost may change. Moreover, CII has proposed that the Commission could audit the variable cost details. However, CII proposal does not mention basis for arriving at the fuel cost, such as the Fuel Cost, Calorific Value, Heat Rate of the generators etc. Without knowledge of these parameters it is impossible to determine the fuel charges and hence the surcharge on consumers.

b. Reliability of CPPs:
To meet the load shedding in MW terms, the CPPs have to produce 90-100 MW during every hour of load shedding. This mandates availability of more than 90% to ensure full MW support. So, reliability of the CPPs is critical in making this scheme operative.

3. Alternative approaches to reduce load shedding in Pune

Any prudent decision should be based on a critical and holistic evaluation of all possible alternatives to the prescribed solution. In this case, it becomes all the more important, as the proposal is very costly. Following are some of the possible low cost alternatives:

a. Reduction in T&D losses:

As per the MERC order on load shedding protocol if in particular urban division AT&C loss are below 25%, then for a statewide load shedding of say 2500 MW, load shedding in the particular division would be just around 0.5 hr./ day. Out of 8 divisions in Pune Urban Zone, 3 divisions already have AT&C losses below this level and in normal course are subjected to load shedding of just 1 hr./ day considering current power shortage. Most of the other divisions have AT&C losses of about 30 %. If the AT &C losses in these divisions are reduced just by about 5%, then even based on MERC's current load shedding protocol, load shedding for these divisions would reduce significantly. In light of AT&C loss reduction achieved in other urban areas this is not an impossible task.

b. HT industry and load shedding:
Presently, industrial consumers on express feeders and in MIDC areas are completely excluded from load shedding. However, small consumers in Pune (Commercial, LTPG and some Domestic) give more revenue to MSEB than large industrial consumers in Pune! Therefore, talking in economic terms, such small consumers could also be excluded from load shedding or a more equitable load shedding needs to be adopted for all consumer categories in the division. In alternative, HT industry could opt for a voluntary load shedding of say 30 min per day by adjusting operational timings and / or using CPPs. If this is incorporated, load shedding in Pune could further reduce to just 0.5 to 1 hours per day.

c. Management of reliability at micro level:
A typical small (LT) domestic, commercial or industrial consumer can manage with the load shedding of 0.5 to 1 hour every day, if the load shedding schedule is notified in advance. Therefore, requirement of consumers who cannot afford load shedding of such a small quantum could also be handled at the micro level. Such consumers may use inverters / DG sets if they wish to. In this approach, the small section of consumers that needs very high reliability, automatically takes individual actions without encroaching on the other consumers. Whereas, in the CII initiated proposal, all consumers in Pune (including small domestic) would be forced to accept the significantly increased cost for higher reliability of supply. This has to be seen in the light of prevalent limited load shedding in Pune even when the state is facing large shortage.

d. Reliability charge for HT industrial consumers:
In its tariff order dt. 10th March 2004, MERC has stipulated that MSEDCL should levy a surcharge (reliability charge) on HT industries, which are provided with uninterrupted supply. This charge was fixed as 25 p/ unit. Effectively, this acts as incentive for MSEDCL to exclude HT industries from load shedding also. Unfortunately, MSEDCL has still not started levying this charge. Imparting such reliability charge on HT industrial consumers in Pune could fetch incremental revenue of about Rs 35 Cr every year! This could be

used to purchase additional power for Pune. One wonders why the MSEDCL / MERC did not ensure implementation of MERC order on this account for so long?

e. Exploring other possibilities of additional generation:
All other possible sources of power generation in the state should be explored. For example, for a long time Prayas has been pointing out that MSEB's power plant at Uran could be converted to liquid fuel at a cost of just Rs 25 Cr! Moreover, this would make additional 400 MW available at a much lower cost of generation, and does not entail any operational / administrative difficulties. Four times more capacity can be availed with a generation cost of two third of the present proposal! Similarly, it needs to be explored if any additional generation from other sources could be made available.

f. Buying peaking power from a trader:
Peaking power could be brought from a power trader at a much cheaper rate and the additional cost of power purchase could be recovered from Pune consumers, if MERC finds it acceptable to take such city / area specific approach. This arrangement may make the scheme financially viable. With an excellent outreach to the industrial community in the country, CII could easily facilitate this transaction.

Often the issue of lack of availability of trading power and lack of transmission corridor are cited as limitations in this approach. In this context it is essential to note that very recently, to meet the reliability requirements and power shortages in Mumbai, both, TPC and REL had succeeded in buying power from trading companies at a much lower rate than the cost of CII proposal. And to meet the reliability requirements of Mumbai system MSTCL has agreed to transfer about 200 MW power to Mumbai. A similar approach may be adopted to meet the reliability requirements of Pune region.

g. Load withdrawal incentive for all large consumers:
This present CII scheme effectively incentivises load withdrawal by a consumer at Rs 10.18/kWh. Before adopting this scheme, the potential of offering a similar scheme / incentive for all large consumers of the state (shopping malls, multiplexes etc.) needs to be explored. In fact, such consumers may have a significant potential of reducing their demand at virtually no cost at all and could possibly be incentivised at a much cheaper rate! E.g. incentives of say Rs. 5 / unit could be considered for such consumers who voluntarily agree to reduce load at pre-defined hours.

4. Other key issues

While, this proposal talks about the power problems in Pune, it raises some fundamental questions, which need to be considered.

a. Public Policy and equity:

Any prudent public policy should try to balance the trade off between efficiency and equity. The load shedding in major urban areas is just 1 to 2 hours, and that in rural areas is as high as 8 – 9 hours every day including evening hours. This is already causing serious social tensions and public protests (at times turning violent). Therefore, our primary concern should be to reduce load shedding in rural areas and make the distribution of electricity as equitable as possible. Any additional revenue should be used to reduce the load shedding in rural areas on a priority basis.

b. Utility economics:
Though the contemporary short-term solutions are essential, the utility should build a long-term perspective and plan. The additional revenue generated should be utilised for funding such long-term solutions such as building transmission capacity. i.e using additional revenue for productive use, rather than just short term revenue expenditure.

c. Energy efficiency and Demand Side Management:
Promoting energy efficient devices and Demand Side Management (DSM) schemes such as CFLs have a great potential for peak relief at minimal cost. E.g. Imparting interruptible tariff for all consumer categories could curb the inefficient and wasteful use of electricity considerably. Several such schemes are possible at much lower cost. These should be developed with efforts and inputs similar to the CII proposal.

d. Critical gaps in the planning and regulatory process so far:
The fierce power shortage that the state is facing today is not a result of any unknown and unpredictable factors. It is very unfortunate, that till today MERC has not undertaken a comprehensive demand forecast and capacity addition planning (either for any licensee such as MSEB / REL or for the state as a whole), though it has shown significant initiative to process and approve over 1000 MW of capacity addition through renewable energy sources such as wind, cogeneration, biomass based power generation and recently small hydro. This is a serious lacuna on the backdrop of demand forecast process initiated by MERC few years ago, for which suggestions for consultant's Terms of Reference were invited from consumer groups. To the best of our knowledge, no progress has been made so far.

Another glaring shortcoming in the planning and regulatory process relates to the issue of large T & D losses. Here again, unfortunately, MERC has restricted itself to decisions made at the time of tariff orders of MSEB and has not conducted even a single meeting or public hearing to review MSEB's performance in this regard and to make it accountable for reduction in T & D losses.

e. Availability based tariff order of CERC:

As per the ABT tariff order of CERC, the maximum charges for unscheduled interchange, even at the critical system frequency are fixed at Rs. 6 / u. Also as per some recent newspaper reports, MSEB and a few other SEBs have represented to CERC for fixing ceiling on trading margin as well as on cost of power. (even though the cost of power being traded currently is much lower than Rs. 10 / unit). In this context the rationality of effectively buying power at Rs. 10 / unit and its impact on other power purchase cost needs to be considered. We wonder if the MSEB is effectively acting contrary to the application done to CERC seeking a limit on the cost of power (including limits on trading margin)

5. Prayers

a. In light of prevailing high cost of oil, limited load shedding for Pune (1 to 2 hrs. / day), and, exclusion of most HT industries from load shedding, the present proposal of CII is highly uneconomical and goes against the prudent public policy as well as utility policy principles and hence it should not be approved.
b. Concerted efforts to explore the alternative, low cost and rational approaches to mitigate the current power shortages need to be made by licensee, as well as MERC, may be with the help of industry associations such as CII and other consumer groups. Some of such options are listed above.
c. MERC needs to hold the licensee accountable for carrying out utility duties on two crucial issues – reduction of T & D losses and bridging the current demand supply gap in a rational and economical manner. In fact, it is high time that MERC adopts a comprehensive and rigorous approach towards these issues. Moreover, MERC should hold reviews and other processes as described in MERC orders.
d. We request the commission to allow us to make presentation at the time of public hearing in Pune.

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