

**Before the
MAHARASHTRA ELECTRICITY REGULATORY COMMISSION**

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CASE Nos. 81 of 2006 and 5 of 2007

**In the matter of MSEDCL's Proposal to increase the hours of planned Load
Shedding across the State**

**Dr Pramod Deo, Chairman
Shri A. Velayutham, Member
Shri S. B. Kulkarni, Member**

ORDER

Dated: April 23, 2007

The Commission issued its Order on February 20, 2007 in Case No. 78 of 2006 on the proposal filed by MSEDCL on February 6, 2007, on the principles and protocol to be adopted for load shedding by the Maharashtra State Electricity Distribution Company Limited (MSEDCL), in view of the prevailing emergency situation on account of shortage of electricity in the State of Maharashtra, in continuation of its earlier Orders issued on the same matter in Case 5 of 2005 and Case 35 of 2005. The key features of the Commission's Order have been detailed below for easy reference:

"The broad principles of the earlier Order dated January 10, 2006, read with the Clarificatory Orders and Corrigendum to the Order, have been retained. The main features of the Order and the modifications to the principles and protocol for load shedding are as follows:

- (i) *Under normal circumstances, MSEDCL would be required to submit its Proposal for revision of the Protocol, hearing/s would be held and an Order could be issued after detailed analysis. However, **this is an emergency situation** and has to be treated accordingly. Accordingly, the Commission held a hearing at short notice at Pune, and is giving this Order expeditiously, without undertaking a detailed analysis of the*



demand-supply gap and the justification submitted by MSEDCL for the increase in load shedding....

- (ii)
- (iii) *Notwithstanding the fact that the current critical situation could have been avoided to a large extent, with proper planning and capacity addition over the last ten years, and with improved efficiency in distribution as regards distribution losses and collection efficiency, the fact remains that the demand-supply gap has increased, which has to be apportioned across different categories and regions in an equitable manner. Consequently, **the Commission is constrained to permit increase in load shedding beyond the earlier stipulated ceiling of 12 hours.***
- (iv) *There is no denying that when the situation has reached such critical proportions, all the consumer categories, including industrial category, have to share the load shedding impact equitably.*
- (v) *In its earlier Order in Case 35 of 2005, dated January 10, 2006, the Commission had introduced the concept of load regulation for industrial category, wherein, non-continuous and continuous industries were required to restrict their monthly consumption to less than or equal to 80% and 90%, respectively, of their average monthly consumption over the previous twelve months (January to December 2005), in MU terms. The Commission had also ruled that if the stipulated load regulation targets were not met, then a second staggering load shedding day would have to be introduced for the industrial category. However, the load regulation for industrial category did not achieve the desired results, as industries did not reduce their consumption. Neither did MSEDCL ensure implementation of this directive.*
- (vi) ...
- (vii) ...
- (viii) *Moreover, industries have to contribute their bit to mitigate the load shedding in the State and hence, the Commission has decided to reintroduce the load regulation for industrial consumers.*
- (ix) *Non-continuous and continuous industries are required to restrict their monthly consumption to less than or equal to 80% and 90%, respectively, of their average monthly consumption over the previous twelve months (January to December 2006), in MU terms. The clarifications given in this regard by the Commission through its Order*



dated February 21, 2006, will be applicable with modifications for the change in time period (from January to December 2005, to January to December 2006). If the stipulated load regulation targets are not met within the next two months, then a second staggering load shedding day will be introduced for the industrial category. MSEDCL is directed to enforce this directive seriously, unlike MSEDCL's inaction in this regard last time. Any violation of this directive by MSEDCL may invite the penal provisions of the EA 2003. However, in case MSEDCL is able to source additional power in the future and undertake the schemes such as feeder separation, so that atleast the earlier stipulated protocol with ceiling of 12 hours of load shedding can be maintained, then this directive will not be applicable.

- (x)
- (xi) *Railway traction loads and public water works on separate feeders will not be subject to planned load shedding.*
- (xii)
- (xiii) *The Commission had specified the ratio for apportionment of the load shedding requirement between various regions as 1:1.5:3.5 between urban and industrial conglomerations, other regions, and agriculture dominated regions, respectively, in its earlier Order. The same ratio is to be maintained for any increase in load shedding requirement, due to reported increase in the demand-supply gap. However, with the projected relief obtained by load regulation for industry, and maintaining the equivalent level of load shedding for urban agglomerations, as in the earlier Order, the ratio of load shedding between urban and industrial conglomerations, other regions, and agriculture dominated regions is effectively modified to 1:1.4:2.8. The Commission has considered additional load shedding of two hours, two hours and three hours, respectively, to urban and industrial agglomerations, other regions and agricultural dominated regions.*
- (xiv)
- (xv) *As and when the requirement of load shedding reduces, due to additional availability of supply and/or reduction in demand, the divisions classified under A, B, C and D will get the relief in that sequence, and agriculture dominated regions will get relief first, then other regions, and finally urban and industrial conglomerations will get relief.*



(xvi) Based on the above Grouping and principles, an illustrative example assuming an evening peak shortfall level of 5500 to 5700 MW is given below.

Area Category	Indl. & Urban Agglomeration	Other regions	Ag. Dominated Region	Akshay Prakash Yojana		Ag. Feeder Separation areas
			3 Ph & 1 Ph LS	1 Ph LS	3 Ph LS	3 Ph & 1 Ph LS
A	4.5	6.5	14	2	14	14
B	5	7	14.5	2	14	14
C	5.5	7.5	15	2	14	14
D	6	8	15	2	14	14

(xvii) The load shedding protocol will work only if the field staff implements the same without any deviation. MSEDCL should constitute local committees involving prominent local citizens to ensure proper implementation of the protocol at the sub-divisional level and monitoring of the protocol at the feeder level, and display the prevalent load shedding protocol and schedule for each feeder, prominently at each sub-station, accompanied by adequate publicity in the local newspapers. MSEDCL's vigilance squad should monitor and report instances of deviation from load shedding schedule, directly to the Commission. Wherever, instances of deviation from the planned load shedding protocol are found, strict action will be taken against the concerned officials.

(xviii) As regards the region specific claims like Bhiwandi and other regions which sought a reduction in the load shedding on the basis of improvement of distribution loss and collection efficiency, MSEDCL is directed to consider the same, and if there is any improvement or deterioration in performance of any region in a quarter, then the same should be given effect in the load shedding protocol over the next quarter. MSEDCL should undertake this performance monitoring on a quarterly basis and give effect to the same accordingly.

(xix) **Deviations arising out of grid operation may be required only by the State Load Despatch Centre in exigent situations, but planned load shedding should be undertaken in accordance with these principles.**

(xx) ...” **(emphasis added)**



2. As stated, the above load shedding Protocol was formulated as recently as in the third week of February 2007 for a projected demand-supply gap of 5500 to 5700 MW.

3. MSEDCL also filed a Petition for modification of the Load Shedding Protocol on February 9, 2007 (Case 81 of 2006), giving certain Options with different hours of load shedding for different regions, on the basis of a projected demand-supply gap of around 5500 MW to 5700 MW in its license area. Comments and suggestions were invited on this Petition, which was heard publicly at six locations in the State, along with MSEDCL's MYT Petition (Case 65 of 2006), given the inter-linkages between the load shedding protocol, power procurement, and the tariffs. The comments received from stakeholders on this Petition have been summarised in the Commission's Order on MSEDCL's MYT Petition, considering that a common hearing was held.

4. Before the Commission could pass an Order on the Petition filed by MSEDCL in Case 81 of 2006, MSEDCL filed another Petition (Case No. 5 of 2007) on April 12, 2007, seeking further enhancement in the load shedding to different regions, citing enhanced demand-supply gap of around 6500 to 7000 MW. As the Petition under Case No. 5 of 2007 supersedes the Petition under Case No. 81 of 2006, the Commission is giving a combined Order disposing both the Cases, as under:

5. In its Petition in Case No. 5 of 2007, MSEDCL proposed two Options for the load shedding Protocol as follows:

- a. Option 1, giving additional load relief of 11.22 MU per day:
 - i. Increase in load shedding by 1.5 hours to urban and industrial agglomerations
 - ii. Increase in load shedding by 2 hours to Other Regions
 - iii. No increase in load shedding for Agriculture dominated regions, since they have reached the ceiling hours of 15 hours
 - iv. Increase in load shedding by 1 hour for single phasing regions, agriculture feeder regions
 - v. Suspension of Akshay Prakash Yojana (APY) for a period of three months
 - vi. Imposition of load shedding in Pune city for 3.5 to 5 hours



- b. Option 2, giving additional load relief of 15.90 MU per day:
 - i. Measures proposed under Option 1, plus imposition of one additional day of staggered load shedding for MIDC areas

6. Alarmed by the possible impact of such sudden and steep change in the quantum of load shedding on the forthcoming Tariff Order, the Commission called for an immediate hearing on April 16, 2007, at Centrum Hall, Centre – 1, World Trade Centre, Cuffe Parade, Mumbai 400005, in the presence of authorised Consumer Representatives, the Notice for which was issued on April 13, 2007. Around 120 individuals/organizations attended the Hearing. In the Notice, the Commission directed MSEDCL to respond to certain queries in the context of the load shedding protocol now proposed by MSEDCL, which are reproduced below:

1. *“MSEDCL should submit the desired load relief from the proposed load shedding plan, as the two Options proposed by MSEDCL are resulting in different load relief of 11.22 MU and 15.90 MU. The computation of load relief should also be submitted for verification.*
2. *MSEDCL should explain how it is arriving at quantum of unrestricted demand, demand met and load shedding in MW and MU*
3. *MSEDCL has submitted that the total load relief from the load shedding plan implemented in March 2007 is only 79.618 MU. MSEDCL should substantiate this with the help of load duration curves. Moreover, the load shedding plan approved by the Commission in its Order dated February 20, 2007 is around 104 MU, as per MSEDCL’s submissions to the Commission. MSEDCL should explain this discrepancy, and why additional load shedding is required, when the existing approved plan was expected to provide the desired load relief, since the total relief desired works out to a maximum of 95.52 MU (79.62 MU + 15.90 MU).*
4. *MSEDCL has cited demand growth as one of the reasons for the increase in the demand-supply gap from 5700 MW (which was considered in the Order dated February 20, 2007) to 6500 MW. MSEDCL should explain why this demand increase was not anticipated in its MYT Petition and Petition for approval of load shedding protocol, on which Public Hearings were held as recently as March 17, 2007. MSEDCL should also bring out the actual category-wise demand growth and division-wise demand growth vis-à-vis the demand growth considered in the MYT Petition and the earlier Petition for approval of load shedding protocol (Case 81 of 2006).*



5. *MSEDCL has cited the non-availability of generation capacity of MSPGCL and NTPC as one of the reasons for the reduction in supply. Since many of these outages are planned outages, these must have been already factored into the planning while approaching the Commission with the earlier Protocol, which was approved by the Commission in February 2007. MSEDCL/MSPGCL should detail the deviations in actual outages and outages considered in the Petitions, the total additional MW made unavailable on this account, and the justification for the same.*
6. *MSEDCL has cited the limitation on usage of water at Koyna hydel station upto 67.5 TMC as one of the reasons for the reduction in supply. However, this limitation has been in force for many years, and was well anticipated in the load shedding protocol as well. MSEDCL should justify how this can be cited as a reason for the increase proposed in the load shedding protocol.*
7. *MSEDCL has stated that TPC has overdrawn 250 MW in the first week of April. However, neither MSEDCL nor SLDC have been able to substantiate a similar allegation on overdrawal by TPC during March 2007. MSEDCL should substantiate this allegation on overdrawal during April 2007, in the Hearing. MSEDCL should indicate the Power Number for the grid in case of (a) Maharashtra (including Mumbai licensees), (b) Western Grid, and (c) Combined grid of WR+ER+NR. MSEDCL is required to substantiate how much impact would be there on the Maharashtra grid in the event of overdrawal to the extent of 250 MW and what will be the resultant drop in grid frequency levels necessitating EHV opening amounting to 1200 MW.*
8. *SLDC should furnish the following information for the month of March and April 2007 for every time block of 15 minutes*

(MW)

Sl	Timeblock	Drawal by MSEDCL CGS		Frequency (Hz)	Drawal by TPC	OLC of MSPGCL	Demand met	Load Shedding
		Scheduled	Actual					



9. SLDC must clearly bring out the specific time blocks in the above Table, when EHV opening or under frequency relay system operation has taken place (to be highlighted appropriately)
10. In its Order dated February 2007, the Commission had directed MSEDCL to regulate the consumption by HT industrial consumers upto 80% and 90% for non-continuous and continuous industries, failing which MSEDCL was directed to undertake a second staggering day of load shedding for such consumers. In the current Petition, MSEDCL has not made any reference to this aspect. MSEDCL should explain the steps taken by MSEDCL in this regard, and the results of the analysis of the consumption during this period (after February 20, 2007), and whether the demand-supply gap has increased on account of the load regulation not being strictly enforced.
11. MSEDCL should give details of the contracted power purchase and quantum in MU (station-wise) in the months of March and April 2007 in the following Format:

Sl.	Source	March 2007		April 2007	
		MW	MU (actual purchase)	MW	MU (actual purchase till date)
A	MSPGCL				
1	Chandrapur				
2	Khaperkheda				
3	Koradi				
				
B	CGS				
1	KSTP				
2	Vindhyachal				
3	TAPP - III				
	...				
C	TRADERS				
D	UI				
E	TPC				
F	OTHER SOURCES				
G	GRAND TOTAL				



12. MSEDCL should give details of the efforts made to procure power from the open market and the actual contracted power for the period April to September 2007.”

7. During the hearing, MSEDCL was unable to substantiate or answer most of the above queries. The Commission also raised additional queries during the Hearing, such as:

- a. Whether the planning for demand and energy was being done at 50 Hz frequency, as required?
- b. What are the circumstances that have changed so drastically over the past six weeks that have prompted MSEDCL to seek an increase in the hours of load shedding to different regions?
- c. Whether Koyna has been over-utilised during earlier months, leading to a crisis now?
- d. How does the current load curve compare with the load curve shown in February 2007?
- e. Why is MSEDCL claiming now that the Akshay Prakash Yojana (APY) has not been effective, when MSEDCL was claiming till four to six weeks ago that the APY was a grand success and an innovation in itself, to involve people to sort out organisational shortcomings?
- f. Whether industrial demand has been regulated in accordance with the Commission's Orders?
- g. Whether the load shedding protocol proposed by MSEDCL is the ceiling, or is there a possibility of MSEDCL seeking a further increase in load shedding subsequently?
- h. How is the load shedding protocol enforced? How is the load relief measured?
- i. Whether TPC has actually overdrawn power necessitating EHV opening of enormous magnitude as claimed?

8. Replies given by Shri. Ajay Pandey, MD-MSEDCL, to the queries raised by the Commission during the Hearing are summarised below:

- a. Load planning is not done at the standard normal frequency of 50 Hz
- b. Because of the low prevailing grid frequency, over-drawal by MSEDCL from the grid under UI mechanism has reduced by around 700 to 800 MW
- c. RGPPL is generating only 350 MW against anticipated generation of 700 MW
- d. Parli and Paras generating stations of 250 MW each, being set up by MSPGCL, have not come up as expected



- e. The assessment of load relief obtained by APY has now been assessed on the basis of computer-based analysis of feeder-wise data for the month of March 2007, which has revealed that the load is not being regulated to 20% during peak hours, and hence, MSEDCL has proposed suspension of APY for a period of three months
 - f. A tender has been floated on April 3, 2007, seeking bids for power purchase requirement for the month of April 2007 onwards, as old tie-ups were available till March 31, 2007. The bids are to be opened on April 17, 2007. Currently, around 500 to 600 MW power is contracted on 'as and when available' basis.
 - g. Preliminary analysis of industrial consumption in the month of March 2007 shows that there has been no significant reduction in the consumption by this category.
 - h. The proposed load shedding protocol is based on current and realistic forecast; however, the load shedding protocol should have some scope for further load relief, to provide for any force majeure events.
 - i. The load characteristic is changing because of the unmanageable load shedding, and the load diversity has reduced, as a result of which, MSEDCL is unable to estimate the demand realistically.
9. Some of the key observations made by the other participants during the Hearing have been summarised below:
- a. All speakers unanimously opposed the increase in load shedding proposed by MSEDCL
 - b. Industrial consumers requested the Commission not to impose the second day of staggered load shedding as it would affect the industrial production, and in turn affect employment in the State, as well as the tax revenue to the State and Central Governments
 - c. Some industrial consumers and organisations submitted that they would voluntarily reduce their consumption.
 - d. Analysis of peak demand data over the past two years shows that the demand during the months of April and May is typically lower than the peak demand in the preceding months of December and January, however, MSEDCL has indicated an increase of 1000 MW in April 2007
 - e. New Parli 250 MW station was originally scheduled for July 2006, but is yet to be commissioned. When will it achieve maximum generation capacity?
 - f. When is New Paras 250 MW being commissioned?



- g. Why is MSPGCL's PLF so low, and why are they not being held accountable for their under-performance?
- h. ASC is linked to load shedding, however, load shedding continues to increase without any corresponding change in the ASC matrix
- i. MSEDCL has proposed to suspend the Akshay Prakash Yojana (APY) citing non-cooperation of the participating consumers. APY should be continued, as the indiscipline was on account of EHV openings undertaken by MSEDCL during the hours of assured three-phase supply to APY regions, forcing consumers to draw power during other hours of the day
- j. There should be equal load shedding in both urban and rural areas
- k. Data submitted by MSEDCL is totally unreliable and no changes in the load shedding protocol should be made based on such data
- l. MSEDCL recovers the ASC, intended to recover the cost of costly power purchase, but does not purchase the costly power
- m. Some areas in Dombivli are facing only two hours of load shedding, while other areas are facing seven hours of load shedding even though they are in the same vicinity
- n. Action should be taken under S.142 of the EA 2003 against MSEDCL's officials for failure to supply the agreed quantum of electricity and for violation of the load shedding protocol, as well as non-compliance with the Commission's directives
- o. There should be no discrimination between Mumbai licence area and areas like Bhandup, Mulund and Kanjurmarg, which are an integral part of Mumbai, but are being penalised for being located in MSEDCL licence area
- p. MSEDCL is neither doing any load shedding nor imposing weekly staggering day as done for the industries, for the shopping malls that have come up in Mulund area
- q. MSEDCL should not give standby supply to TPC
- r. Why has the supply availability reduced from 9500 MW to 8000 MW over two years?
- s. Problem has arisen because of MSEDCL's action of discontinuing power purchase from several sources from April 1, 2007, without assured fall back arrangement in place
- t. MSEDCL's field officers are portraying that load shedding is being done on the instructions of the Commission
- u. Why is MSEDCL seeking the Commission's approval for undertaking the second day of staggered load shedding for industrial category, when the Commission's Order dated February 20, 2007 clearly directs MSEDCL to



undertake the same, in case the industrial consumers fail to regulate the consumption below the specified limits?

- v. How justified is MSEDCL in considering purchase through the Unscheduled Interchange (UI) route as a planned source of supply
- w. MSEDCL has no credibility left, and is also leaving the Commission with no option, as either no data or incorrect data is being submitted to the Commission
- x. Luxurious use of electricity in all forms should be banned, all over the State

10. MSEDCL and SLDC were given additional time of one day to submit written replies to the queries raised by the Commission in its Notice. MSEDCL and SLDC submitted their respective replies on April 18, 2007. MSEDCL's/SLDC's response, and the Commission's analysis on each of the issues is discussed below:

Desired load relief from proposed Load Shedding Protocol

11. MSEDCL submitted that there is no discrepancy in the assumption of load relief, as the total load relief desired is around 118 MU per day. MSEDCL submitted that the total load relief with the load shedding protocol implemented in March 2007, amounts to 79.618 MU (from industrial and urban agglomerations, other regions, and agriculture dominated regions) and 16.404 MU from load management (single phasing and APY), giving total load relief of 96.022 MU, and a gap of 22.209 MU. The load relief has increased after implementation of the ceiling load shedding hours specified in the Commission's Order dated February 20, 2007, to 86.50 MU and 15.30 MU, respectively, giving a total load relief of 101.80 MU, leaving a further gap of 16.40 MU.

12. MSEDCL submitted revised Option I, giving total load relief of 116.43 MU, by increasing load shedding to industrial and urban agglomerations and other regions by 2 hours and around 3 hours, respectively, while maintaining the ceiling of 15 hours for agriculture dominated regions, and without undertaking second staggering day of load shedding for industries.

13. MSEDCL submitted that the load relief from Option II was 117.41 MU, by increasing load shedding to industrial and urban agglomerations and other regions by 1.5 hours and 2 hours, respectively, while maintaining the ceiling of 15 hours for agriculture dominated regions, and after undertaking second staggering day of load shedding for industries.



14. In response to the Commission's query on load duration curves, MSEDCL has instead submitted sample load curves for different months.

15. Firstly, the Commission fails to understand the rationale behind MSEDCL's proposed Option I, which does not consider second staggering day of load shedding for industries, despite the Commission's clear directives in this regard. MSEDCL appears to want to favour industrial consumers at the expense of the remaining consumers in the State, which is not equitable. When the demand-supply gap in the State has reached such crisis proportions, all categories and regions have to contribute their bit towards sharing the burden. Moreover, the claims made by the industrial consumers during the Hearing that they would voluntarily reduce their load, do not seem to be backed up by commensurate action, as MSEDCL claims that the consumption has not reduced. MSEDCL should immediately comply with the Commission's directives in this regard. As regards continuous process industries connected on express feeders, appropriate economic signals are being given in the Tariff Order for MSEDCL to be issued shortly.

16. As regards the desired load relief being indicated by MSEDCL in this Petition, MSEDCL has not been able to justify as to why the demand-supply gap, and hence, the desired load relief has gone up from around 104 MU at the time of the Order issued by the Commission in February 2007, which was also maintained by MSEDCL during the Public Hearings in the State at various locations in March 2007. This appears to be merely some kind of arithmetical computation, prepared to justify the revision to the load shedding protocol, without addressing the root cause of these problems. This observation is also buttressed by the fact that MSEDCL has not submitted the load duration curves which would clearly highlight the percentage duration of time during a day/month for which the system demand is reaching these peak levels, as the load shedding protocol should be designed keeping in view the probability of occurrence of the demand, rather than for certain stray incidences of system peak. The Commission hence, rejects this explanation of MSEDCL.

17. Moreover, it is observed that though MSEDCL claims to have implemented the ceiling hours permitted by the Commission in its Order dated February 20, 2007, through its load shedding plan revised w.e.f April 7, 2007, MSEDCL has actually deviated from the load shedding protocol approved by the Commission in its Order dated February 20, 2007, by increasing the load shedding to Other Regions by 15 minutes, on the grounds that the ratio specified by the Commission, i.e., 1:1.4:2.8, has been maintained by MSEDCL. This is clearly a violation of the spirit of approved



load shedding protocol, and hence, not acceptable, and MSEDCL should immediately modify the load shedding protocol to be in consonance with the Commission's Order dated February 20, 2007. MSEDCL cannot increase the load shedding hours on the plea of applying the existing ratio approved by the Commission.

Method of determining Unrestricted Demand, Demand met and Load Shedding in MW and MU terms

18. MSEDCL submitted a Block Diagram to explain its method of determining the unrestricted demand. MSEDCL submitted that the unrestricted demand is the sum of the demand met (availability considering all the sources of supply) and the load shedding data from the field.

19. MSEDCL's explanation leads to the conclusion that the estimation of load shedding quantum in MW and MU is not based on any measurement and hence, not scientific. In fact, there appears to be no sanctity to the numbers being presented to the Commission, even though they are being submitted on affidavit. MSEDCL's projection of the load in MW appears to have no relation to the assessment of energy requirement in MU. For instance, in MSEDCL's MYT Petition, the quantum of power purchase in MU is estimated by grossing up the sales by the distribution losses. However, the quantum of power purchase to be undertaken during FY 2007-08, does not consider any power purchase from traders, and has considered power purchase from RGPPL also to a limited extent only. However, during discussions on load shedding, it is communicated that unless additional power purchase is done from other sources, load shedding will increase. It follows that any power purchase in MW terms for any duration in hours will translate to sales in energy terms (MU).

20. This mismatch appears to be on account of MSEDCL's method of assessing the load relief obtained by the method of recording Load Before Tripping (LBT) at the time when the particular feeder is tripped, on receiving instructions from the SLDC. Even this LBT is mostly projected by empirical method rather than meter based MW/MVA reading. This itself makes the data vulnerable to gross error. This quantum of load shedding is added to the demand met, to derive the quantum of unrestricted demand. The load value is the average connected load on the feeder, which is not recorded accurately by MSEDCL for consumer categories like residential, commercial, etc., where the sanctioned load/connected load are not used for billing purposes. The average connected load is again a myth in absence of consumer indexing or scientific survey to know the customers and creation of



consumer database at feeder level. Further, the assessment of LBT itself is not convincing, given that the recording could be indicating the peak load on that feeder, rather than the average load. Moreover, these LBT data are based on manual recordings in the register at the sub-station, rather than Automated Meter Reader (AMR) data, which can be collected on a real-time basis and stored for future use.

21. In fact, MSETCL has submitted a letter ref: Dir(O)/MSETCL/No. 03818 dated April 12, 2007, and submitted on April 20, 2007, wherein it has stated that the load shedding needs to be enhanced, as the load relief being obtained with the existing load shedding protocol is only 4800 MW, which needs to be enhanced such that the load relief is at least 6000 MW during peak hours. This is contrary to the submissions made by MSEDCL, which has led the Commission to believe that the existing load shedding protocol gives a load relief of around 5700 MW. Moreover, the Commission is of the opinion that MSETCL, as the STU, does not have any locus-standi in this matter, which is within the realm of operations of the SLDC and MSEDCL. With such widely fluctuating claims and data by different entities as well as the same entity at different times, which seem to vary on a daily basis, there is no justification to modify the protocol that has already been approved by the Commission.

Deviation between actual outages of MSPGCL and NTPC stations vis-à-vis the projected outages

22. MSEDCL submitted data on generating Units under planned outage and generating Units under forced outage as on April 11, 2007, wherein it has indicated that around 1235 MW was under outage (additionally 210 MW Parli 3 has been shown under outage on April 12, 2007).

23. The data submitted by MSEDCL does not offer a comparison between the actual loss in available capacity due to planned and forced outages vis-à-vis that considered in the MYT Petition as well as the Commission's Order dated February 20, 2007, which was based on MSEDCL's proposal dated February 6, 2007. Thus, MSEDCL has not been able to justify that the decrease in supply availability has been due to increase in forced outages. Moreover, these matters need to be resolved between MSEDCL and MSPGCL, with MSEDCL being the sole customer of MSPGCL. However, even now, despite the Commission's directive, MSPGCL and MSEDCL are yet to enter into any Power Purchase Agreement (PPA) either for the existing stations or for the new Stations, which would clearly lay down the obligations and rights of each Party. Had the PPA been in place, then MSEDCL could have



sought appropriate compensation from MSPGCL for the loss caused due to the reduction in generation and delay in commissioning of new projects. Unfortunately, it is so happening that MSEDCL is bearing the brunt of not only its inefficiencies, but also the inefficiencies of MSPGCL, which has been a significant contributor to the prevailing crisis situation. MSEDCL and MSPGCL are hereby directed to enter into PPA and submit the same for the Commission's approval, within one month of this Order. The said PPA should also deal with rights and obligations of both Parties with regard to new Stations.

Utilisation of Koyna hydro station

24. MSEDCL submitted that around 8.448 TMC of water is yet to be utilised, as on April 14, 2007.

25. Data on monthly utilisation of water at Koyna indicates that Koyna has been over-utilised during the month of January 2007, which has resulted in lower availability during the subsequent periods. Moreover, MSEDCL has not been able to justify how the restriction on water usage can be cited as a reason for the reduction in the supply availability, considering that the restriction has been in force for several years now, and not a new factor that can be relied upon to justify EHV opening for managing the load.

Over-drawal by TPC (Mumbai licensees)

26. MSEDCL cited over-drawal by TPC as one of the reasons for the increase in the demand-supply gap and the resultant EHV openings undertaken by MSEDCL. MSEDCL submitted the Power Number for the grid as under:

§ Maharashtra (including Mumbai licensees):	380 MW/Hz
§ Western Grid	: 900 MW/Hz
§ Combined grid of WR-ER-NR	: 1800 MW/Hz

Source: Minutes of second meeting of system operators held on 28th June 2006 at WRLDC, Mumbai

27. MSEDCL submitted that over-drawal by TPC to the extent of 250 MW results in a drop in the combined and Maharashtra grid frequency by about 0.14 Hz and 0.28 Hz, respectively. MSEDCL submitted that TPC has overdrawn when the system



frequency was between 49.00 to 49.10 Hz, which requires MSEDCL to carry out additional load shedding by way of EHV openings.

28. Firstly, the data given by MSEDCL on the Power Number of the combined grid does not reflect the existing ground reality. MSEDCL has time and again been submitting that the grid frequency has reduced due to the synchronisation of the Northern grid with the National Grid on August 26, 2006, which has reduced the scope for over-drawal by MSEDCL. Given that the grid has been synchronised on August 26, 2006, the Commission fails to understand the rationale behind submission of Power Number data as on June 28, 2006, which does not reflect the existing situation. The Commission estimates that the Power Number of the Combined Grid would be more than 2000 MW/Hz considering the demand met in March 2007, meaning that over-drawal of 250 MW by any constituent would not result in EHV opening to avoid grid disturbance.

29. During the Hearing on April 16, 2007, conflicting claims were made in the matter of over-drawal by TPC. Shri. Ajay Pandey, MD, MSEDCL and Shri. Subrata Ratho, MD MSEB-Holding Company, claimed that TPC had overdrawn from MSEDCL's share of power, leading to the crisis, whereas, Shri. Barbole, CE, SLDC claimed that there was no real over-drawal by TPC, as TPC has entered into bi-lateral contracts, and has drawn lower than their share during certain hours of the day. The Commission directed SLDC to submit documentary evidence of the over-drawal or under-drawal by TPC for the first two weeks of April 2007.

30. Subsequently, SLDC in its letter ref: CELDK/TECH/No. 00532, dated April 17, 2007, submitted the hourly data of schedule and drawal by TPC from April 1, 2007 to April 16, 2007. SLDC submitted that,

“In this connection, it is to submit that M/s. TPC have taken steps to restrain overdrawal by arranging bilateral power from outside sources. Also, there were several meetings at top management level to mitigate situation. In an integrated system, it is difficult to exactly match the drawal with schedule at all times. Hence the daily total in MUs will be appropriate to verify the action taken. It appears from the abstract of daily data that M/s. TPC have restrained from overdrawing since hearing held on 12.4.07.”



31. The over-drawal/under-drawal by TPC over this period in MU terms is summarised in the Table below:

Sl.	Date	Over drawal (+) / Under drawal (-) (MU)
1	01-Apr-07	-0.034
2	02-Apr-07	0.646
3	03-Apr-07	1.710
4	04-Apr-07	1.452
5	05-Apr-07	0.886
6	06-Apr-07	0.174
7	07-Apr-07	-0.323
8	08-Apr-07	-0.541
9	09-Apr-07	0.688
10	10-Apr-07	1.327
11	11-Apr-07	0.480
12	12-Apr-07	1.587
13	13-Apr-07	-0.040
14	14-Apr-07	-0.798
15	15-Apr-07	-0.585
16	16-Apr-07	0.213
17	TOTAL	6.842

32. In MW terms, there appears to be some over-drawal by TPC to the extent of around 100 to 150 MW during the period April 9 to April 12, 2007, in the time slots from 12:00 hours to 18:00 hours, which has been off-set to some extent by under-drawal during other hours of the day. SLDC's submissions appear to be justified by the above data and analysis, which shows that the net over-drawal by TPC is quite low, and there have been days when TPC has underdrawn from its quota, which has benefited MSEDCL. Thus, the Commission concludes that the over-drawal by TPC has been marginal and has not contributed to the shortfall in availability as claimed by MSEDCL.

33. Moreover, the Commission clarifies that over-drawal, if any, is actually by Mumbai licensees and not TPC alone, as TPC-D's requirement is lower as compared to that of REL-D and BEST. The standby arrangement is for emergency situations and not normal drawal, and the Mumbai licensees have to ensure that adequate power supply is contracted. Mumbai licensees should not overdraw from the MSEDCL grid under normal circumstances, and will have to undertake load shedding in their respective licence areas, in case of any shortfall in availability. SLDC or any such empowered entity shall take into account the available contracted capacity to each Distribution Licensee before issuing drawal/curtailment instructions for respective Distribution licensee. During real-time operations, the load curtailment as may be



necessary shall be applicable on all distribution licensees uniformly in proportion to their available contracted capacity and shall be applicable for shortfall beyond their available contracted capacity.

Power purchase by MSEDCL in April 2007

34. MSEDCL submitted the details of actual power purchase from different sources during the period February 2007 to April 2007, which has been summarised below:

	Source	February 2007		March 2007		April 2007 (upto 15 th)	
		MW	MU	MW	MU	MW	MU
1	MSPGCL Thermal (coal + gas)	5116	3806	5790	4308	5639	2030
2	MSPGCL Hydro	461	343	467	348	1212	436
3	Central Sector	2391	1779	2646	1969	2610	940
4	Total Others	774	576	832	619	549	198
A	Traders	195	145	311	231	63	23
B	UI	318	237	196	146	190	68
C	TPC	11	8.5	3	2	0	0
D	RGPPL	250	186	322	240	296	107
5	TOTAL MSEDCL	8741	6504	9735	7243	10011	3604
6	MSEDCL average availability w/o hydro and UI	7962		9072		8608	

Note: MSEDCL has indicated that in April 2007, the hydro generation was increased by 450 MW to 500 MW to ensure grid stability due to poor system frequency. Now hydro generation is reduced due to limitation of water utilisation.

35. MSEDCL indicated that response to its tender floated on April 3, 2007 for RTC power purchase of 600 MW over the period April to June 2007, met with a very poor response, and only one offer for 100 MW RTC power on a day ahead basis for May 2007, and 60 MW RTC on firm basis for June 2007, has been received from a trader. The balance tie-ups for around 600 to 700 MW for the month of April and May 2007 are on 'as and when available' basis.

36. In the above data, MSEDCL has attempted to convey that the availability of supply has been lower in the real sense, by excluding the availability from UI and hydro stations. However, comparison of the quantum of power purchase in March and April 2007 as indicated in the above Table clearly shows that there is a reduction of 250 MW on account of reduced power purchase from traders and there is a 150 MW reduction in supply from MSPGCL. The higher utilisation of hydel capacity has thus been brought about on account of reduced power purchase, and MSEDCL cannot now take shelter under the fact that hydro has been over-utilised and is now not available.



Any reduction in power purchase will obviously affect the frequency and MSEDCL has to accept responsibility for its actions.

37. Contrary to the claim made by MD-MSEDCL that MSEDCL's estimates of demand were going off the mark on account of change in consumption pattern, the written submission by MSEDCL indicates that the demand estimation has been reasonably close to the actual demand. Thus, it is evident that it is the reduction in supply availability, primarily on account of reduced power purchase, that has caused this crisis.

38. Even in February 2007, reduction in power purchase by MSEDCL caused a crisis and repeated EHV openings, as a result of which, the Commission was constrained to revise the load shedding protocol by increasing the ceiling hours of load shedding from 12 hours to 15 hours. However, MSEDCL does not seem to have learnt from this experience, and has committed the same mistake of reducing power purchase from March 31, 2007. MSEDCL has replied that tenders for procuring power for the month of April 2007 were floated on April 3 with tenders to be opened on April 17. This is irresponsible behaviour, as MSEDCL knew well in advance that the power purchase tie-ups are valid only till March 31, 2007, and it is unlikely to get a positive response given that many power-starved States are ready to pick up every unit of available power.

39. MSEDCL has brought about this crisis on itself, by stopping power purchase from traders with effect from April 1, 2007. Justification given by MSEDCL for reduction in power purchase is that power purchase was planned at lower levels, since New Paras and New Parli of 250 MW as well as RGPPL of around 350 MW were expected to come up in April 2007. The Commission fails to understand this approach, since it appears that MSEDCL does not want to reduce the demand-supply gap below 5700 MW, as it did not contract for the additional quantities. The reduction in power available from these sources has resulted in further increase in the demand-supply gap beyond 5700 MW, which shows that MSEDCL is planning for a demand-supply gap of around 5700 MW and is not taking any effort to reduce the same. This is not acceptable, and MSEDCL should purchase the required power to reduce the load shedding below 5700 MW and not to maintain load shedding at 5700 MW or more.

40. MSPGCL performance is also much below par, as indicated by the wide fluctuations in the On-line Capacity (OLC), and frequent break-downs resulting in



loss of generation, and hence, increase in the demand-supply gap. Moreover, New Paras and New Parli projects have been delayed for over 9 months till date, and it is even now not clear, when the projects will be synchronised, leave alone achieve Commercial Operations Date (COD), and generate upto full capacity.

41. Considering the unreliability of MSPGCL generation, and the uncertainty in RGPPL and new projects, it becomes even more essential for MSEDCL to plan for contingencies and enter into contracts for appropriate quantities for power purchase, which in any case would be useful to mitigate the load shedding in the State, and which would give additional revenue to MSEDCL.

42. The Commission has provided the enabling mechanism of Additional Supply Charges (ASC), to recover the cost of power purchase from costly sources. However, MSEDCL continues to charge its consumers as per the ASC matrix, irrespective of whether it buys costly power or not. MSEDCL's lack of liquidity is a lame excuse for not undertaking power purchase, as MSEDCL in fact, is faced with a situation of excess liquidity. Data submitted by MSEDCL indicates that MSEDCL has over-recovered around Rs. 141 crore through levy of ASC, in the three-month period from October to December 2006. In addition, MSEDCL has also levied Incremental ASC (IASC) to recover the difference between the actual per-unit rate of costly power vis-à-vis the power purchase rate considered by the Commission in its Tariff Order. Recovery from IASC would only add to the extent of over-recovery mentioned above. MSEDCL is directed to refund the amount of over-recovery over the period October to December 2006, on a 'one to one' basis, proportionately to the consumers who have paid excess ASC.

Load Shedding Protocol

43. MSEDCL has exhibited a lack of proper planning and anticipation, by not estimating the load requirement in MW vis-à-vis the energy requirement in MU, and by not arranging for the requisite power purchase.

44. Even the so called DSM measures through agricultural load management schemes, which are nothing but load curtailment schemes, seem to be focusing on single phasing and APY, rather than agriculture feeder separation, of which there is no mention. If MSEDCL is to be believed, APY is a failure, and single phasing scheme has been rescheduled to be completed by October 2007. The single phasing scheme, in any case, does not have the Commission's approval. Feeder separation,



coupled with Feeder metering and DTC metering through AMR, will go a long way in solving these problems, however, MSEDCL's focus seems to be on other load management measures.

45. Another aspect that may have contributed to this situation is the poor and improper implementation of the load shedding protocol in the field. MSEDCL has formed certain local Committees of officials of MSEDCL and certain Government functionaries for ensuring compliance with the load shedding schedule. While this is a start, MSEDCL should induct prominent local citizens from these areas into these Committees, in accordance with the Commission's directives on the same. MSEDCL should ensure that these Committees submit monthly reports to the Commission on the deviations observed in the implementation of the load shedding protocol.

46. In this context, it is worrying that MSEDCL seems to think that load shedding is the only answer to all problems related to demand~supply gap. For instance, in its MYT Petition, it has not projected any purchase of costly power in FY 2007-08 from traders and other sources, even though the same would be available for purchase, given that MSEDCL was buying this power in FY 2006-07. MSEDCL seems to believe that load shedding hours can be increased to any level, through a combination of planned load shedding hours and EHV opening, citing grid security requirements. Rather than arranging for the required power purchase, MSEDCL has been proposing modifications to the load shedding protocol with ever-increasing ceiling hours, which have increased from 8 hours (in August 2005 Order) to 15 hours in the February 2007 Order.

47. MSEDCL's prime responsibility as a distribution licensee is to supply electricity for 24 hours to all its consumers, and this obligation should not be forgotten in the background of regular load shedding in the State, which has come to be accepted as a fact of life by most of the consumers. MSEDCL does not have any inherent right to impose load shedding on its consumers, and that too in an ever increasing manner with no relief in sight. Zero load shedding should be the target. MSEDCL should ensure that all the power required is purchased, accounted, billed and collected. At this rate, the additional capacity being contracted by MSEDCL will not be able to keep pace with the growth in consumption, and load shedding will increase further. MSEDCL should appreciate that at this rate, not only may industries go away from the State, but also agriculture as a productive activity may die, which would result in food security concerns.



48. MSEDCL seems to have got into the habit of submitting a proposal periodically for increase in the hours of load shedding, citing grid security concerns and increase in EHV openings. MSEDCL should desist from almost threatening the Commission that it will have to undertake EHV openings unless the proposed increase in load shedding is approved. After getting the Commission's approval for the higher level of load shedding, MSEDCL is undertaking EHV opening in any case, as witnessed recently as well as earlier. EHV openings are very disruptive, and MSEDCL is also not giving relief to the affected regions by way of corresponding reduction in planned load shedding. Given this practice of MSEDCL, there is no reason to approve the higher level of load shedding, supposedly in order to avoid EHV opening, when the root cause of this crisis is the reluctance of MSEDCL to purchase the requisite quantum of power. Power would be available, if adequate and serious efforts are made in a timely manner, as the Mumbai licensees under the co-ordination of TPC have shown by tying up around 400 MW in ten days time. If MSEDCL so desires, the same should be possible. EHV openings shall be used only as a system security measure during emergency system operation, and shall not be used as a tool to enhance load shedding hours.

49. This is very clearly a failure on the part of MSEDCL to plan its load requirement and the power purchase quantum, and MSEDCL should pay for its mistakes. It cannot expect the Commission to bail it out each time. The Commission does not wish to be party to this act of MSEDCL to deprive its consumers of their due share of electricity, in an ever increasing manner. MSEDCL is abdicating its responsibility and appears to be portraying to the consumers that load shedding is being done on the instructions of the Commission. It is the responsibility of MSEDCL to supply electricity to the consumers and MSEDCL is squarely responsible for the load shedding in the State, and attempts to pass on the blame to the Commission are mischievous and deplorable.

50. The Commission has been approving the load shedding protocol in the past, in order to ensure that MSEDCL undertakes load shedding in an equitable manner, and does not discriminate against rural and agricultural regions, citing commercial reasons. However, any further increase in the load shedding as proposed by MSEDCL would be inequitable to all categories and regions, and the Commission, hence, rejects MSEDCL Petition in its entirety.



This Petition is disposed off accordingly.

Sd/-
(S.B. Kulkarni)
Member

Sd/-
(A. Velayutham)
Member

Sd/-
(Dr Pramod Deo)
Chairman



Secretary, MERC