

Before the
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Case No. 19 of 2005

**In the matter of
Disruption of Power Supply from 26th July, 2005 in Mumbai Metropolitan Region.**

**Dr. Pramod Deo, Chairman
A. Velayutham, Member**

Dated: 19th August, 2005

INTERIM ORDER

Considering widespread disruption in power supply following heavy rains from 26th July, 2005 onwards and indications that it had yet to be restored in many places, the Commission asked the concerned Distribution Licensees to submit a detailed report, by 2nd August, 2005, on the day-to-day position from 26th July, 2005 in the Mumbai Metropolitan Region (MMR) in the first instance, under its Notice dated 1st August, 2005. The reports were to include the reasons for disruption, the areas affected, the number of consumers involved, the steps taken to restore supply to such consumers, the time by which supply to all consumers would be normalized, and other relevant details, considering the provisions of the Electricity Act (EA), 2003, and the Supply Code and Standards of Performance (SoP) Regulations. Copies were also to be furnished to the four consumer representatives authorised on a standing basis under Section 94(3) and to the Energy Department, Government of Maharashtra. A hearing was also fixed on 3rd August, 2005.

2. The Mumbai Metropolitan Region comprises the Brihanmumbai Municipal Corporation area as well as several urban and other areas adjoining it in Thane and Raigad Districts. The Distribution Licensees concerned with this area are the Brihanmumbai Electricity Supply & Transport (BEST) Undertaking, Maharashtra State Electricity Distribution Company Ltd. (MSEDCL) (in whom the distribution function of the erstwhile MSEB have been vested recently), Tata Power Company Ltd. (TPC), and Reliance Energy Limited (REL).

3. BEST distribute electricity primarily to south and central Mumbai, with a few areas in the suburbs, and receive all their power from TPC. In their submission dated 2nd August, 2005, BEST stated that the torrential rains on 26th July, 2005, followed by continued rain over the next few days, resulted in water logging in low lying areas, forcing BEST to switch out a number of receiving stations, 11 kV sub-stations and service cabins in order to avoid electrocution and other hazards. Due to moisture ingress in insulation and sub-soil water, there was an unusually high increase in underground cable faults. Apart from the normal arrangements made for exigencies during the rains, BEST further strengthened its operational wing by deploying personnel from other departments. Although the number of cases of faults pending for repairs exceeded one hundred, care has been taken to ensure that electricity to consumers is restored by giving overhead supply to ensure essential loads of lighting and water pumps till such time as faults are repaired. BEST have annexed details of the type of faults, and the day-to-day position. BEST have also



submitted that, considering the exceptional circumstances and constraints beyond their control, and the provisions of Clause 17.1 of the Supply Code as well as the Standards of Performance Regulations with regard to supply of electricity, which would apply for a normal situation, these standards may not be considered in this situation.

4. At Annexure B of its submission BEST have submitted the number of consumers affected in terms of normal fuse off call (2509, with average duration of 120 minutes), 33/22/11kV outage / breakdown (1,57,850 consumers, average duration 128 minutes), low voltage / underground cable fault (9750 consumers, average duration 1000 minutes). There have been no instances of fuse-off call, outage/breakdown, low voltage/cable fault from 2nd August, 2005 and no cable faults from 30th July, 2005. During the entire period from 26th July, 2005, there have been no distribution transformer (DT) failures. The further breakup and details have been furnished at Annexure-C.

5. MSEDCL distribute electricity in a part of the Mumbai suburbs (around Mulund and Bhandup) and the rest of the MMR outside Mumbai city. In their submission dated 2nd August, 2005, MSEDCL have stated that, due to heavy rains in the State, especially in areas around Mumbai and other parts of the Konkan, there were widespread disruptions in power supply. However, inspite of severe constraints of water logging and difficulties in transport of men and material, MSEDCL and the Maharashtra State Transmission Co. Ltd. (MSTCL, in whom the transmission functions of the erstwhile MSEB have been vested) had been able to largely restore power supply except in a few areas which are still heavily water logged. Where water logging is heavy, supply has been switched off as a precautionary and safety measure, and arrangements have been put in place to restore power supply immediately after the water level recedes.

6. MSEDCL have stated that, while prioritizing the restoration work, supply to public water works was given the highest priority. Supply to the Mohone Water Works, which supplies water to Kalyan and parts of Thane, was restored at 22 kV level through alternate arrangements on 29th July, 2005. This supply was disrupted due to the collapse of the 100 kV tower on the first day. Similarly, the public water works supplying water to other major urban centers, including Bhokarpada, Kalyan-Dombivli Municipal Corporation, Shahad, and the Thane Water Supply scheme were restored within 48 hours, mostly through alternate feeders. MSEDCL have given details of disruptions in 8 EHV sub-stations/lines. Of these, 4 have been already been restored, and the remaining 4 are expected to be restored at various times between 15th August to 30th September, 2005 depending on the line/sub-station. However, in some of these cases also, alternate arrangements are fully or partly in place. In the case of disruptions on 33/22 kV and 11 kV levels also, in many cases supply was restored through alternate arrangements on some other feeders and other nearby DTs considering the submergence of the original network. MSEDCL have submitted that, in all the accessible areas, supply was restored within 24 hours. However, supply was given in some of the areas on a rotational load shedding basis in order to safeguard the local system and the network. Details of 9 sub-stations / feeders have been given. With regard to DTs, MSEDCL have given details from which it is seen that, out of 6172 DTs, 257 were disrupted on 26th July, 2005. As on 2nd August, 2005, 51 DTs remained to be restored, mostly in the Kalyan (including Ulhasnagar, Titwala, Ambernath, Badlapur, Dombivli) area, and would be restored as soon as the water level recedes. MSEDCL and MSTCL have also extended technical assistance and 220 personnel to assist REL in restoring power supply to Mumbai suburbs from 31st July, 2005.

7. REL distribute electricity in most of the Mumbai suburbs, and receive a part of their power requirement from TPC and the rest from own generation. In their submission dated 2nd August, 2005, REL have pointed out that Mumbai and its suburbs received unprecedented rain fall from 26th July, 2005, and drawn attention to the fact that rain on that day in the suburbs was 40” as compared to 3” in south Mumbai. This resulted in heavy water logging in large areas of



north Mumbai, making it impossible for the civic administration, railways, transport, etc., to function effectively, and disrupted the electricity distribution as well. REL have stated that water had entered many of the DTs and mini pillars. Since the distribution system is underground, the cables could not be accessed due to severe water logging, forcing immediate suspension of electricity supply in certain areas as a safety measure, particularly considering the inflammable material flowing into the water. REL have also submitted that, even as on today, the State administration have been constantly notifying them of areas where there is water logging likely to cause short circuit problems and requiring them to discontinue the power supply.

8. REL have stated further that power restoration work continues to be hampered by persistent and fresh water logging, continuing rainfall and restrictions on travel to many areas, affecting the speed of work and movement of engineers and equipment. REL have mobilized 300 additional engineers and equipments from their operations in other parts of the country, along with teams from the erstwhile MSEB, TPC, and engineering / equipment firms such as Siemens, ABB, Alstom, AEC and others.

9. REL have submitted that, out of 4050 DTs in their area, 3953 (97.5%) have now been made functional. The balance 97 transformers, mainly located in low lying areas on the banks of the Mithi river, Saki Naka, Kurla, and Kalina, where water logging continued for much longer, have been extensively damaged, requiring major overhaul or replacement, for which arrangements have been made. The overflowing of the Mithi river again on 31st July and 1st August, 2005 has made the restoration work extremely difficult and hazardous in these areas. REL have concluded that disruption of power from 26th July, 2005 onwards was beyond their control, and all measures had been taken to remedy it at the earliest.

10. REL have given details of the disruptions in power supply and the status of restoration in the Annexures to their submission dated 2nd August, 2005. Briefly, they indicate that, out of a total of 4050 DTs, 3462 DTs were affected on 26th July, involving 18,57,658 (84%) of their consumers. This was reduced to 1711 DT areas on 27.7.2005 involving more than 9,13,674 consumers (42%), and further to 741 DT areas involving 3,92,725 consumers (18%) the next day. Thereafter, there was a substantial reduction in the number of DT areas affected involving around 4% of its consumers from 29th to 31st July, 2005. As on 1st August, 2005, 137 DT areas were affected, involving 72,062 consumers (3%). As on 2nd August, 2005 morning, a total of 97 DTC areas were affected, of which restoration of 49 was under progress and 48 were water logged.

11. TPC distributes electricity, mainly to larger consumers in some areas also served by BEST and REL. In their submission dated 2nd August, 2005, TPC have stated that, despite severe water logging, they were able to sustain generation from both from their thermal as well hydro units (except for Unit 4 of Trombay, which was under scheduled overhaul). Although the primary distribution network of various substations was kept functional, the Ambarnath Receiving Station was inundated and supply could be maintained only on 110 kV. The Chembur Receiving Station faced interruptions for a duration of 2 to 10 minutes due to 110 kV line and lightning arrester faults. TPC have submitted that the power supply to their direct consumers was sustained, except in a few cases between 26th and 28th July, 2005. Where there were interruptions, supply was restored at the earliest, details of which have been annexed. In most cases, the supply was disrupted due to water logging in the consumer sub-station. Thus, except two consumers, power supply had now been restored to all consumers. In the remaining two cases, TPC expected that power supply would be restored through DG sets by 2nd August, 2005 night.

12. The matter was heard on 3rd August, 2005. At the outset, Shri Jayant Kawale, MD, MSTC submitted that the disruption of power in the State had been very severe. Starting from the generation side, Koyna hydro had to be repeatedly shut down. On the transmission side also, there were serious disruptions. For instance, towers of the 400 kV Kalwa-Padge double circuit



line collapsed on 26th July, 2005 night. At 110 kV level, Kalyan, Panvel and other nearby towns were affected. The first priority was given to water works, where alternate arrangements were made to provide power supply wherever possible. This was done in 48 hours, such as for water supply in places like Shahad. However, even today there has been flooding in many areas and some of the sub-stations are still not functioning. He himself was at the Headquarters and also assisting REL in their control room, leaving MD, MSEDG and other senior distribution officers to tour/camp and take spot decisions at the worst affected places such as Kalyan.

13. The Commission observed that, while preparations are usually made for contingencies during the monsoons, an unprecedented situation going well beyond 'normal' exigencies had arisen. It is necessary to see how effectively it has been addressed, and to learn from this experience lessons for the individual and collective action that needs to be taken.

14. Shri Sanjay Bhatia, MD, MSEDG stated that, after water supply, the focus was on other sub-stations and DTs, and the work in some areas such as Kalyan is continuing. At many places, including rural areas, poles have fallen, and there is still water logging. Besides, recently, water had to be released from the Barvi Dam, once again hampering work in Kalyan and other areas. In some urban areas, the water level had reached the first floor of the houses, thus inundating the DTs even though they are placed at a height. Each DT had to be checked, and many of them were replaced. Additional equipment and personnel were brought in from other MSEDG areas such as Nashik, etc. However, initially, there were logistical problems, such as availability of cranes and their movement. The area around Mohone was particularly problematic, affecting 22 DTs still remaining. Shri Bhatia submitted that at many places DTs were not the real problem, but supply itself considering the collapse of towers, etc. He pointed out that, on the first day, the disruption in telecommunications also hampered effective response, and even mobile telephones were not functioning. Considering the water logging, shortage of supply itself, as well as the effect on DTs, the main line has yet to come back in Kalyan. In Ulhasnagar, MSEDG were able to improve the situation because of the expeditious restoration work of the TPC sub-station. In Vashi, almost every sub-station / DT was affected, but most of these have now been restored, as well as Bhandup, Thane and partly in Bhiwandi. In Bhandup, there was a major problem in the Colour Chem sub-station because of water logging, and supply had to be stopped for 18 hours. Unconventional methods had to be used to restore supply by bypassing the DTs. A similar situation was faced for three days in Kalamboli, where supply was restarted but disrupted again. Panvel was also had a major problem and was completely flooded, and the ONGC sub-station supplying it had stopped functioning. Shri Bhatia submitted that the main pending problems now are in some areas of Kalyan, Titwala and Mohone and some powerloom feeders of Bhiwandi, though the residential supply has, by and large, been restored there. There has been a considerable reduction as of now in the DTs affected, i.e. to about half of the figure of 51 indicated in the written submission.

15. Dr. S.L. Patil of the Thane Belapur Industries Association (authorised consumer representative), opined that MSEDG's restoration work at Mulund and Bhandup had been quick and effective. Shri Kawale stated that this had been done in 2 days, but a major problem was faced because of damage caused by MMRDA road works.

16. Dr Ashok Pendse of Mumbai Grahak Panchayat (MGP) (authorised consumer representative), referring to the Commission's observation with regard to planning for future contingencies, felt that it would be useful to know the quantum of men and material brought in by MSEDG from other areas to places such as Kalyan, etc., which might give some indication of the extent of redundancy and additional manpower required in such situations. The Commission observed that such redundancy on a standing basis comes at a cost which is to be borne by the consumers and, therefore, some optimum balance has to be struck. MSEDG have some advantage in this respect since they cover most of the State and can mobilize substantial resources quickly



from elsewhere, whereas other Licensees with a limited area may face some difficulties. However, that also raises the question of modalities for co-ordination between Licensees in such situations in order to optimize the available men and material for quick recovery.

17. Shri Mahesh Bhandari, Shri D.S. Sathe, and Shri M.K. Gupta of TPC stated that, after meeting supplies to BEST and REL, TPC were also able to assist MSEDCL to the extent of 30 MUs, the PLF of the Trombay units being 58% and that of the Hydro units being 92% during this period, particularly considering the shutdown of the Koyna unit. Communications were maintained with all the Receiving Stations on fibre optic and microwave. All the interconnections with MSEDCL were intact at 220 kV Trombay as well as Borivli / Kalyan, and also with REL. Except for Chembur, which faced intermittent faults, all receiving stations are operational. There were also some problems at Parel and Ambarnath due to water logging. Uptil yesterday, only two major consumers remained affected, and their supply has also been restored by night. During the entire period from 26th July, 2005, the total number of consumers affected was 46. In some cases, DG sets were put into service and consumers given supply, as detailed in the annexures to their written submission. Thus, by and large, power supply was restored between 26th and 28th July, 2005. In addition, 30 REL consumers have been provided supply from TPC's sub-stations at Saki Naka since 28th July 2005, and three teams provided to REL from 1st August, 2005 to assist in restoring supply in the worst affected area of Saki Naka, Kurla, and Vakola.

18. Shri S.S. Kshatriya, General Manager, BEST, gave an overview of the very detailed information provided in the Annexures to their written submission. The main problem took place on 26th July, 2005 but only in certain pockets of low lying areas of Dharavi and Antop Hill and such places as Dr. Babasaheb Ambedkar Marg, Lower Parel, Tulsi Pipe Road, etc. Wireless enabled BEST to keep some communication going. BEST also found that the redundancy that had been built into the system, and for giving temporary supply through alternate measures, had been adequate to meet the situation, although admittedly in most of the BEST areas the rainfall was less than elsewhere in Mumbai. As a result, there is no area which does not have supply at present. Some of the disruptions initially were because of the conscious decision to cut off supply as a safety measure.

19. Shri Kshatriya also pointed out that BEST have a disaster management system and duplicate underground feeder / network lines so that, when a fault occurs in one link, it transfers immediately to the other. Thus even if a transformer or sub-station fails, the supply can be restored from the low voltage side and temporary supply given to the consumers in the meantime. Shri Kawale, MD, MSTC, pointed out that, whereas the alternate underground system had been useful in the case of BEST, his experience of working with REL was that a similar arrangement there had also caused problems because of difficulties in access. MD, MSTC also pointed out the tremendous difficulties faced in laying and accessing of cables by the utilities.

20. As far as lessons for the future are concerned, Shri Kshatriya submitted that, although water level in some places had risen up to the transformer, it had not entered the breathers. However, the design, selection of place of sub-station, manner in which transformers are installed, systems of quality inspection, etc. may also be issues that may need to be looked into by Licensees subsequently. BEST have also noticed weaknesses in control room communications which are old fashioned, as a result of which consumers complain that they are unable to reach it. BEST have decided to go for a four-digit system which would enable the control room to receive several calls at a time.

21. GM, BEST acknowledged that there may be some consumers whose supply has not been restored because of other faults after water logging and who may not have complained as of now. For this purpose, the local Municipal Corporators have been requested to inform BEST of any buildings, etc., where there is still no power so that BEST could cross check as to whether or not



the problem has been attended to. However, BEST's information is that there is no locality or area which has been without electricity since the last 2-3 days.

22. Elaborating on REL's written submission, Shri Lalit Jalan assisted by Shri Subodh Shah of REL submitted that there was water logging across the entire suburbs of Mumbai on 26th July, 2005. On that night, 84% of the REL consumers did not have power because everything was under water. Restoration work was started on 27th July, 2005 wherever the water level had started receding, and by 27th July, night the number of consumers affected had been reduced to 42%. At the Control Centre, which is the REL Infocom's office, the entire system was under water. In spite of DG sets and UPS being available, there was a period of 6 hours when no one could enter or reach the Call Centre. The system was restored on 27th evening. However, because of difficulties in movement of people, no replacement personnel were available from the agents manning the Call Centre because they were unable to reach or had their own problems. Thus, on 28th July, although there were around 15,000 calls as against 2500 normally, only 10 or 12 persons were available to take them. However, by 29th July, REL had restored 96% of their consumers. Shri Jalan placed on record the assistance from their own operations elsewhere in the country as well as from BEST, erstwhile MSEB, TPC, and others.

23. Shri Jalan submitted that the most problematic areas remain Saki Naka, Kurla and Kalina, all of which are on the banks of the Mithi river, which is fed partly by Powai Lake. Over the years, because of encroachments, construction, garbage, etc., the Mithi river has become a narrow channel, about which much has now been written. Powai Lake had overflowed, and the water in these three areas went up in some places to 15', and ground and even first floors of many houses were submerged. For the first four days, there was more than 6' of water across Saki Naka, Kurla and Kalina, and nobody could enter there. The water started receding on 30th July, 2005, but again on 31st July and 1st August, 2005, there was 40 cms of rainfall. As a result, once again the water level increased to 6-7' because of the inadequate drainage system. The Indian Airlines and Air India housing colonies in Kalina were under 4' of water until 2nd August, 2005. Shri Jalan pointed out that their DTs can take upto 4' of water, but they get inundated beyond that level. Moreover, in the new buildings, there is an insistence that the DTs be located in the basement. Shri Jalan submitted that, even so, as on 3rd August, 2005 morning, only 41 DTs remained affected, mostly in the Kurla / Saki Naka area, affecting a total of 9900 residential and 1500 commercial / industrial consumers. Of these, 4 are still water logged, including Juhu airdrome and the ONGC helipad. All the remaining 37 are likely to be made operational today if the weather holds. Shri Jalan pointed out that even these housing colonies were restored power on 2nd August evening in spite of 3' water still there.

24. Referring to Shri Kawale's observation on the underground system, Shri Jalan submitted that REL's HT and LT network is entirely underground, which has both advantages and disadvantages. In areas such as Kurla and Kalina, which are still under water, faults could still be located. However, in order to clear them, excavation is required, and dry conditions are necessary. Such repairs are not possible when there is water logging. There were certain sets of DTs where faults occurred on both ends. Since they could not be cleared, cables were even laid across the roads as an alternate arrangement to provide power temporarily. DG sets were also used. Shri Jalan submitted that there were around 150 HT faults which would be cleared over the next 5-7 days, if they are accessible and there is no fresh rainfall. The consumers affected by these faults were supplied directly / through back feeding.

25. Shri Jalan emphasized the point made by Shri Kawale regarding the need for a better a more appropriate dispensation from the Municipal Corporation regarding the needs of the utilities for space and channels for laying of cables, etc., i.e. a 'utility corridor'. MMRDA is undertaking a large-scale programme of road widening without taking this into account in spite of several meetings with them and the Corporation, and repair of faults is hampered by restrictions and



difficulties in digging of concrete roads. He pointed out that the HT cables are now 4 feet below concrete. This needs to be taken up with the Government, Municipal and other concerned authorities. GM, BEST also agreed with this view.

26. Shri Jalan submitted that REL had decided to engage international consultants to review their systems and develop a disaster recovery plan. REL want to raise their LT side network to 6-1/2'-7' so as to provide another 2' of protection for the DTs, etc., particularly in the lowlying areas. He pointed out that the present contingency plan is sufficient for restoration of faults within a short time in case of the very heavy rainfall that occurs once in a while during the rainy season. However, it cannot cope with an unprecedented situation which has occurred for the first time in a hundred years. In case that eventuality has to be planned for fully, then there would be certain very substantial requirements, and it had to be understood that the cost would have to be borne by the consumers on a standing basis even though it may not recur for another 20 years or 30 years. This would have to be explained to the consumers.

27. The Commission observed that although the circumstances were exceptional, the important issue was how quickly and in what manner the licensees responded once corrective action was possible, and whether adequate systems were in place to ensure quick response time and marshalling of resources. In this context, the Commission referred as an example to an e-mail dated 2nd August, 2005 addressed by Shri Homi Daruwala, Vice President, Godrej Boyce & Manufacturing Co. Ltd. to REL, a copy of which was endorsed to the Commission, with regard to power supply to the Godrej Housing Colonies and other facilities at Vikhroli. Shri Daruwala has stated that, by the evening of 27th July, 2005, there was no water logging in any of their premises. However, power supply was only partially restored in the Hill Side, Station Side and Creek Side colonies, but not to the rest of the buildings until the evening of 31st July, 2005. Neither REL's control room, nor the mobile numbers of executives handling the Godrej account, were accessible. Even posting an engineer with a mobile phone at REL's Tilak Nagar office to receive complaints from this area did not result in prompt service. Office buildings, Pump House, Petrol Pump, Godrej Show-Room, and the ICICI ATM Centre were without power from 26th to 31st July, 2005. Shri Daruwala stated further that, even on 1st August, 2005, power was still not available at various locations in the colony, including ICICI ATM Centre. In fact, their Udayachal High School has been without power for the last 6 days. The letter states further that, whereas there was no disruption in the Godrej Hospital supplied by TPC, there was no supply by REL to the two Godrej Towers opposite it. A similar contrast was made between Hill Side Colony buildings supplied by TPC and REL. Even today there are cable faults. A temporary alternative has been provided for single phase connections, but 3 phase consumers are still suffering. This is so even in the absence of water-logging, there being no Ring Main Units in the HT system or LT links between substations. Two 500 KVA DG sets were promised on 28th July but, instead, only one 100 KVA set was given 3 days later, for consumers who are fed by a 630 KVA transformer.

28. The representative of M/s Godrej & Boyce, who was permitted to speak, briefly summarized the difficulties faced by them. Shri Jalan of REL submitted that, in the Hill Side colony, there was a HT cable fault in the feeder of one of REL's transformers. Power has been restored but, because the loading is very high on the alternate feeder, rotational load shedding has been necessitated to rectify the fault. All the efforts in the last two days were to make sure that power to the consumers was restored. The HT fault would be rectified today. There is also a set of buildings in Powai where the feeder is affected. In fact, as mentioned earlier, there were cases where REL were doing rotational load shedding to take care of all consumers. Yesterday also, when power was restored to Indian Airlines and Air India colonies, the REL personnel were working with the help of boats, and there is still 3 feet of water. As far as the Godrej problems were concerned, Shri Jalan himself had been in communication with Shri Daruwala and others.



29. Referring to the support given to REL by others in the form of manpower and equipment such as DG sets, transformers, etc., Dr. Pendse of MGP sought details of the material stock with REL and the quantum that had to be obtained from outside, as well as the additional manpower, which could also be a pointer for the future. Shri Jalan stated that REL would submit the details, which would also give an appreciation of the enormity of the exercise. There had been difficulties in procuring additional portable DG sets, for which there was hardly ever any need. A sufficient stock of other equipment is kept for normal O&M requirements of 3 months, and for exigencies, but not, say, to the extent of 10 or 20 times the requirement. As in the case of MSEDCL, innovative alternatives were resorted to. Cables were laid on the ground to restore power when faults could not be attended to.

30. To the Commission's query regarding the mobility and working methods of field personnel, Shri Jalan explained that REL had now placed their teams in their field Divisions so that they can address customers directly. Details of the deployment, the number of mobiles, vehicles, etc., as compared to the position, say, 5 years ago, would be given. It would be seen that the enormity of the occurrence was beyond what could be handled. In case one had to plan fully for an eventuality on this scale entailing a huge recurring and standing cost to the system, REL would revert to the Commission with the requirements. The Commission observed that what it is trying to address is how quickly and how best REL and others have tried to restore supply to consumers at least in those places which are not water logged. It can be seen later how much cost can be added to strike a balance. Shri Jalan mentioned that there were several communications from consumers who had thanked REL for the turn around and the safety system that was deployed. Now, after the first phase of restoration is over, the second phase of 150- plus HT faults will be addressed over the next 5 to 7 days.

31. Referring to REL's claim that power had been restored to 96% of the consumers, Dr. Pendse of MGP pointed out that individual consumers could not be treated merely as statistics, and that the absolute number of remaining consumers was large in any case. He submitted that there were 3 critical requirements for common consumers, viz. minimum water supply, one bulb and fan, and communications, and none could be maintained. That needs to be addressed. In spite of the State's Disaster Management Plan, it appears that the Commission may have to take up with the licensees what such a plan should be as far as the electricity sector is concerned. The extent of stocking and emergency procurement of equipment such as transformers and DG sets would be one aspect. Dr. Pendse felt that movable equipment could have been procured by REL from outside much earlier and power restored more quickly at many places.

32. Another aspect is that, even after the DTs have been energized, many REL consumers still do not have supply, for instance because of burning of meters, as a result of which some may be drawing directly from the wire. This needs to be addressed on priority so that supply is restored to the consumer without safety hazard, directly if necessary. Meter cost, billing, etc. could be dealt with later, and Dr. Pendse urged REL to give suitable instructions to their staff. External public communication was also very important, and had not been effective enough.

33. Finally, Dr. Pendse submitted that compensation was due to consumers from REL under the Standards of Performance Regulations. Instead, this amount could be used for a separate fund for disaster management and recovery, but the point was that such compensation needed to be paid, and from out of their profits. He felt that, whereas MSDC had come up to the mark in this crisis situation, REL had not been able to do so. Dr. S.L. Patil of TBIA agreed with this assessment.



34. Shri Jalan responded that, for DG sets, REL had contacted every single vendor, with hardly any result. Sets available with Reliance Infocom were pressed into service right from 28th July. One DG set from TPC was taken. Only 11 DG sets above 100 KVA could be organized from vendors, with no consideration for cost. Dr. Pendse could inform them the existence of any other vendors or source whom REL did not contact. He did not want to get into comparison with other licensees, which was for the consumers and the Commission to do. REL would be happy with an impartial enquiry by the Commission, looking at equally affected areas and seeing the response of not only the electricity licensees, but all the service providers. REL would also revert to the Commission with a disaster management/ recovery plan with the help of international consultants. In terms of communication, Shri Jalan pointed that REL had been constantly using the FM and TV channels for updates, apart from press releases, and he himself, had given more than 20 TV interviews. However, it seems that it had not been enough. As regards burnt meters, Shri Jalan stated that instructions had already been given to provide direct supply if meters were burnt, and Dr. Pendse requested that it be ensured that they reach the field staff and wiremen in view of contrary reports from Kurla and other places. Shri Jalan also submitted that the earlier issues raised regarding Municipal permissions needed to be addressed urgently to enable the licensees to take up fault repairs and network strengthening required now. There were all sorts of restrictions. For instance, permissions for cable laying were given only for 50 meters length at a time.

35. Shri Jalan concluded that whatever information has been provided by the consumer representatives and others is not adequate to draw the conclusion that REL have been negligent or unresponsive, or are liable to pay compensation, considering the information provided by REL. What happened in Mumbai in the last one week had not happened in the last 100 years. The response also has to be looked into it.

36. While concluding the hearing, the Commission observed that, apart from the immediate issues, it is necessary to see whether some norms can be developed for the requirements to meet the Supply Code and SOP stipulations, and the level of redundancy that should be built in. This would then become a part of the expenditure to be permitted in the ARR. The Commission asked the licensees to come together and work on this. Shri Kawale of MSTC also suggested that the redundancy required would have to take into account the drainage and other external realities in Mumbai and the MMR area.

37. Subsequent to the hearing, under letter dated 12th August, 2005, REL have informed the Commission that on 4th August, 2005, 9 DTs remained disrupted, of which 7 were restored by 6th August, and all by 7th August, 2005. 62HT cable faults were pending as on 10th August, 2005.

38. The Commission notes that the incidence of rainfall on 26th July, and cumulatively for several days thereafter was unprecedented, particularly in the Mumbai suburbs and its outskirts. This has also to be considered in the light of the inadequacy of the drainage system and other developments that have taken place over the years in these areas, as well as operational difficulties relating to the construction of roads, modalities for laying and accessing cables, etc. Thus, while the impact on electricity supply at many places may have been beyond the control of the concerned Licensees, it is also necessary to see whether the response time of the licensees, after restoration become possible, was quick enough in terms of mobilization and deployment of men and materials. The issue of avoidable external difficulties faced by the licensees also needs to be addressed, which the Commission might do by rendering advice to the State Govt. under Section 86(2) of EA, 2003. As far as individual consumers are concerned, the question of whether or not restoration and repair of faults in the stipulated time limits were within the concerned licensees' control is a matter of fact and investigation on a case-to-case basis, and cannot be generalized. The events from 26th July, 2005 onwards also indicate the need to review the extent of preparedness, and also the extent to which such occurrences can or should be

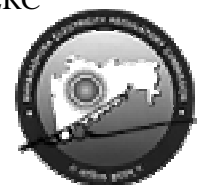


planned for considering the costs to be borne by the consumers. Another aspect is the need and modalities for inter-licensee co-ordination in such situations. This would be a broader exercise which may take considerable time, but is essential. In the meantime as a part of what would essentially be 'work in progress', the Commission directs as follows:

- (a) REL and MSEDCL, who cover the largest number of consumers in the MMR area, and who faced the largest disruption in distribution of electricity, should provide to the Commission, within a fortnight, detailed maps of their distribution system in the MMR showing the disruptions that took place, along with explanatory notes with regard to the reasons and details of restoration.
- (b) REL should provide details of key relevant equipment and materials, including DG sets and transformers, etc. (i) in stock as on 25th July, 2005, and the criterion used for such stocking; (ii) the quantum found to be actually required; (iii) the additional quantum procured to meet the situation, with dates.
- (c) Date-wise details may also be provided by REL regarding when and what assistance was sought in terms of manpower and material/ equipment from other licensees/ agencies/ operations, and when it was received.
- (d) The four distribution licensees in the MMR area and the authorised consumer representatives should jointly prepare and submit to the Commission, within 3 weeks (i) their detailed suggestions to meet the difficulties faced in laying and accessing of cables, etc., location of transformers, and other relevant matters relating to the rules and practices of the municipal bodies and other agencies, as brought out at the hearing, as inputs to the Commission for furnishing advice to the State Govt. (ii) the mechanism they propose to adopt for inter-licensee co-ordination and assistance in such situations. The Group should also include Shri Jayant Kawale, MD, MSTCL, and may be convened and coordinated by MD, MSEDCL.
- (e) Further, the above Group should consider and suggest to the Commission redundancy norms for relevant material and equipment that should reasonably be built into the licensees operations as part of their ARR, taking into account the recent events, and suggest a template to the Commission within 2 months.
- (f) In this context, the Group should also submit, within 2 months, guidelines for disaster management and recovery of the distribution system in Maharashtra, and consider whether a more detailed exercise needs to be undertaken jointly by the licensees with the assistance of experts / consultants. If so, draft Terms of Reference may also be suggested, along with names of suitable consultants.

Sd/-
(A. Velayutham)
Member

Sd/-
(Dr Pramod Deo)
Chairman, MERC



(A.M. Khan)
Secretary, MERC