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**Submission to MERC
Case 06 of 2000**

1st Feb. 2001

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**Part I - Load Shedding
Importance of Load Shedding**

- Alarming Proportions
 - LS = 13 % of energy served in November
 - LS of 1,420 MW for 16 hrs per day in November 00
=> ~ 7506 load met (1/4 of State outside B'bay, HT in dark)
- Significant implications for
 - Merit Order Dispatch
 - Demand Projection
 - Revenue

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MSEB Affidavit on Load Shedding
Dec. 7, 2000

‘ Nearly 4,325 feeders are operated during load shedding. Time and duration of load shedding is recorded at respective substations. Subsequently the total load relief afforded by district is informed daily by the field substations to L.D. center at Kalwa and is recorded.’

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Questionable Claims:
1. Same LS for 6 Years

- Between FY 92 to FY 97 claimed peak shortage was **exactly 400 MW**

Year	Installed Capacity	Unrestricted Demand	Peak Met	Peak Shortage
92	9636	7228	6828	400
93	9950	7196	6796	400
94	10439	7955	7555	400
95	11364	8306	7906	400
96	11523	8978	8578	400
97	11523	9418	9018	400

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Questionable Claims:

2. Ratio Based LS Throughout FY 98-99

Hour	Load Shedding	Hour	Load Shedding
9	0.74 * MP	18	0.6 * EP
10	0.92 * MP	19	0.8 * EP
11	0.65 * MP	20	0.9 * EP
12	0.55 * MP	21	0.7 * EP
		22	0.5 * EP

MP = LS at Morning Peak , EP = LS at Evening Peak

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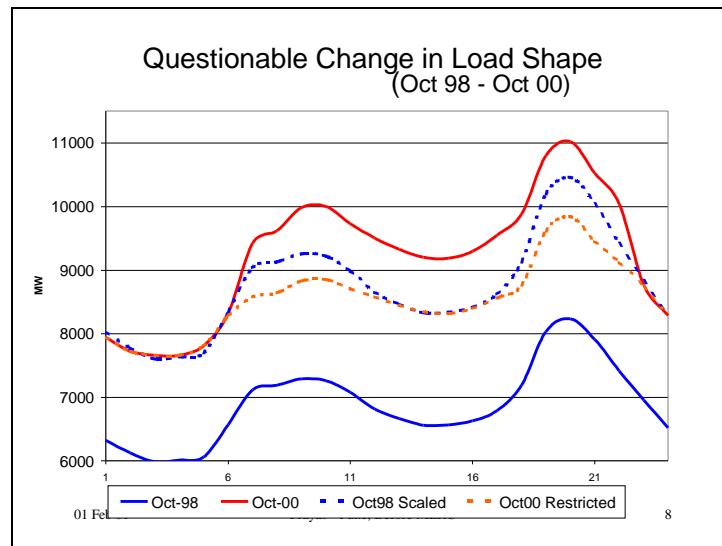
	LOAD SHEDDING MSEB		October 2000							
	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	369	0	0	0
7	1000	1310	1155	1067	800	800	369	600	1000	1040
8	1100	1410	1255	1167	900	1200	369	800	1100	1440
9	1258	1510	1355	1267	1440	1495	369	941	1245	1440
10	1258	1510	1355	1267	1440	1495	369	941	1200	1440
11	1100	1410	1255	1167	1440	1200	0	800	1100	1442
12	1000	1410	1155	1067	1000	1000	0	600	1000	1442
13	800	1310	1155	1067	900	1000	0	600	1000	1442
14	600	1310	1155	1067	800	1000	0	600	1000	1442
15	600	1376	1349	1231	800	1000	0	600	1000	2059
16	800	1376	1449	1331	800	1200	0	600	1000	1600
17	1000	1476	1649	1431	900	1200	0	800	1000	1600
18	1192	1576	1749	1531	1200	1401	0	923	1100	1800
19	1192	1576	1749	1531	1550	1401	0	923	1284	1829
20	1192	1576	1749	1531	1550	1401	0	923	1200	1829
21	1100	1576	1649	1431	1200	1200	0	800	1100	1829
22	1000	1476	1549	1331	800	1000	0	600	1000	1800
23	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0

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Typical Pattern in the claimed LS (April to Oct. 2000)

- Claimed Demand Change more than 15 %
in 1 hour
 - April to Oct. 98 - 27 instances
 - April to Oct. 2000 - 102 instances
 - (214 days)
- Same MW load shedding for 4 consecutive
hours - over 50 % days

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MSEB Claim v/s Demand Projection		
	Increase (%) over previous year	
	99-00	00-01
MSEB Energy	9.2%	3.9%
	(Actual)	(MERC Proj.)
(State En. - April to Oct)		
State Energy (Restricted)	7.3%	3.7%
State Energy (Unrestricted)	7.0%	10.6%

MSEB Energy = MSEB generation + purchases (excl. TEC)
State Energy = MSEB Energy + TEC / BSES Energy

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Part I - Conclusion		
<ul style="list-style-type: none">• MSEB Claims of LS appear unrealistically high• MERC should verify these claims and take appropriate action		

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II a] Coming to DPC

- MSEB affidavit (case 1/99) said - “Min. DPC Gen. required is 250 MW”
- But between June - Nov 2000, DPC was run below 225 MW for 1,375 hours (i.e. for 23 % of time)

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II b] Is DPC Needed?

Let us put things in Perspective (MSEB IC)

Coal	6,400	52 %
Gas	912	20 %
Hydro	2,402	7 %
C.S. share	1,860	15 %
DPC	746	6 %
TOTAL	12,320	100%

Demand met - for 95% time - was less than 7,875 MW
(April to Nov 2000)

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II b] Options for additional Gen.

- MSEB Coal plants
 - Long Term: Coal washing or addition of Boiler
 - Immediate: Blending of Imported Coal (having high calorific value)
- Cost (@ 4,000 Rs/Ton =>) 1.7 Rs/unit
Additional Gen. = 670 MW => 4,100 MU (@70% PLF)
Saving w.r.t DPC (variable cost ~ Rs 2.7/u)
= **Rs 410 Cr/yr**

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II b] Options for additional Gen...

- MSEB Gas plant
 - Uran has multi-fuel facility
 - Usual Gen. at Uran in Yr 2000 was ~ 380 MW
=> loss of 500 MW
 - Additional Gen. possible = **500 MW** => **2,410 MU**
(@ 55% PLF) Combination of base & peak load

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II b] Options for additional Gen...

- TEC's excess capacity

TEC has spare capacity min. 200 and max of 400 MW. The tariff negotiated by MSEB with TEC is Rs 2.8/u.

For assured purchase, MSEB can negotiate better deal

Additional Gen. 300 MW (@ 70% PLF) 1840 MU

II b] Options for additional Gen...

- Industry Captive (Stand-by)

As per MCCIA request - the industry is willing to run its Stand-by gen-sets for MSEB at a cost of Rs. 3/u

This extremely low cost Peak-power can be an asset

MSEB would know the exact quantum of such capacity
- our estimate is ~ 300 MW (I.e. 800 MU, @ 30% PLF).

II b] Options for additional Gen...

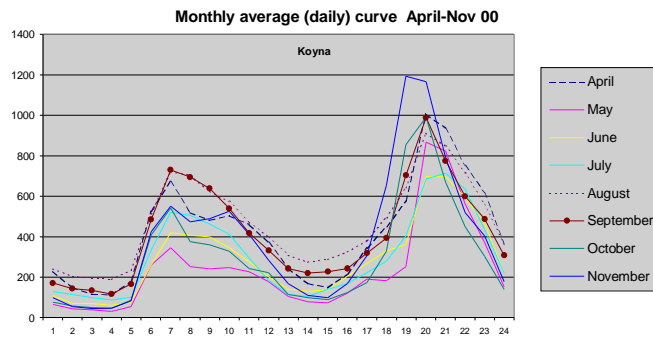
- Optimization of State Gen.

Today, the generation from BSES, TEC is optimized for their own needs. Peak of BSES, TEC and MSEB do not coincide.

State-wide optimization will yield sizable capacity benefits, without adding any capacity.

It is simply a matter of setting proper commercial arrangement.

Generation from Koyna (1800 MW)



II b] Options for Additional Gen.		
	MW	MU
MSEB Coal	670	4100
MSEB Gas	500	2410
TEC	300	1840
Industry Captive	300	800
TOTAL	1770	9150

ALL these, can be implemented immediately

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II. SO IS DPC NEEDED ?

NO

- Cheaper and immediate options available
=> Logical need i.e. 'Merit Order Dispatch'
- MERC should ask MSEB to estimate time required to implement these and direct MSEB to stop purchases from DPC

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