



November 19, 2010
REG/MERC/10/304

Secretary
Maharashtra Electricity Regulatory Commission
Centre No 1, World Trade Centre
Cuffe Parade, Colaba
Mumbai 400 005

Dear Sir

Sub: Disturbance on 18th November 2010 in Mumbai

In compliance with the Regulation 29.2.4 of MERC (State Grid Code Regulations) 2006 and also with reference to your letter No MERC/Case No 84 of 2010/1700 dated 19th November 2010, we are submitting the desired information in the **Appendix**.

We trust the same is in order. We regret the delay in submission.

Yours faithfully

VH Wagle 19/11

(V H Wagle)

Deputy General Manager

TATA POWER

The Tata Power Company Limited

Dharavi Receiving Station
Regulations Department

Matunga, Mumbai 400 019.

Tel 91 22 6717 2635 Fax 91 22 6717 2603

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The details are as under

I. System Conditions prior to Occurrence

- The quantum of generation, interchange and the requirement of Mumbai is as given in the table below

A Generation in Mumbai		
Sr No	Mumbai Generation Units	Generation prior to Occurrence (MW)
1	Hydro	189
2	Thermal	1258
3	Rinfra	493
4	Total	1940

B Interchange between Mumbai and Maharashtra		
Sr No	Interchange Point	Quantum prior to Occurrence (MW)
1	Trombay 220 KV	138
2	Trombay 110 KV	90
3	Kalwa 220 KV	285
4	Kalwa 110 KV	78
5	Borivli 220 KV	0
6	Borivli 110 KV	168
7	Boisar 220 KV	107
8	Gross Interchange	866
9	Less MSEDCL Wheeling at 22 KV	-220
10	Net Intechange	646

C	Mumbai Requirement = A +B	2586
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- In addition, 220 KV Trombay Salsette Line No 1 and 2 which tripped were carrying 334 MW load together. Further the 220 KV bus at Salsette was operated sectionalized to control loading on 220 KV Kalwa Salsette Lines.

II. Brief Description of the Occurrence and Sequence of events

A single line diagram of the 220 KV and 110KV system in Mumbai and the interconnection with MSETCL is shown in Annexure 1

The 220 KV Trombay-Salsette line no.1 tripped at 1739 hrs due to kite string fault in span 70-71 at Tagorenagar Vikhroli. Thereafter, 220 KV Trombay-Salsette line no.2 tripped only at Salsette at 1746 hrs on distance protection.

The 220 KV Trombay Salsette lines that were carrying around 300 MW load of Salsette-Borivli corridor got shifted to 110 KV MSETCL Borivli & 220 KV MSETCL Boisar interconnection.

The 220 KV MSETCL Borivli-Tata Borivli line no.4 (not updated in the diagram) has been kept open since 19th October 2010 due to problem in the MSETCL system. As there was no feed from these lines, it resulted in tripping of MSETCL Borivli ICTs & 220 KV MSETCL Boisar-R-Infra lines on overload.

Thus, islanded R-Infra Dahanu System alongwith its generating units did not survive. About 800 MW load in Western suburb got shutdown. The various relay action details are given as under.

- **220 KV Trombay- Salsette line no.1.**

At Trombay

Siemens (Distance Relay)

Phase B , C

ABB (Distance Relay)

Phase A, B, C

At Salsette

Siemens (Distance Relay)

B and C

- **220 KV Trombay- Salsette line no.2.**

At Trombay

No Relay Action

At Salsette

Micon (Areva) (All features including B , C N(Start) distance overcurrent)

Over current

A, B and C

- **110 MSETCL –Tata Borivli line no.1 & 2**

- i. 110 KV Islanding relay operated
- ii. Under frequency stage 1 & 2 operated

As regards feeders from Tata Power's receiving stations, there was an interruption to some of the feeders fed from Borivli Receiving Station due to operation of the Underfrequency relay. There was also a very brief interruption to the load fed from Tata Power's Malad and Versova stations

We understand that the entire load fed from Rlnfra's stations are Aarey, Versova and Ghodbunder was affected.

III. Generation Loss and Unit tripping during Occurrence

There was neither any tripping of any generation unit nor any generation loss at Tata Power's generation units. We understand that both the units at Dahanu (2 x 250 MW) had tripped.

IV. Restoration of Supply

The 220 KV Bus coupler at Salsette was closed at 1746 hrs. Further, 220 KV Trombay-Salsette line no.2 was taken in service at 1748 hrs & startup supply to R-Infra Dahanu was extended at 1755 hrs.

The 220 KV Trombay-Salsette line no.1 was taken in service at 1811 hrs.

110 KV MSETCL Borivli- Tata Borivli lines were taken in service at 1820 hrs and the 220 KV Boisar interconnection was established subsequently & about 400 MW affected load was restored.

R-Infra Dahanu Unit no.2 was synchronized at 2014 hrs & Dahanu system was normalized. Unit no.1 was synchronized at 2118 hrs.