

C.E. (System Control Centre),

REPORT ON SYSTEM DISTURBANCE / PLANT FAILURE

Power Station: **Kotmale Power Station**

Date: 01/12/2014

Time: 16:57 hrs

1. Failure at a Glance: At 16:57 hrs, Biyagama line 1, 2 and Anuradapura 02 tripped. Anuradapura 01(CB110 & CB 130) was opened under system permit. Upper Kotmale 01(CB310 CB330) was opened under system permit.

2. Pre-fault condition:

Generators(16:30hrs)

Unit No.	MW	MVAr	Voltage kV	AVR on/off	Governor	Remarks
01	26	35	14	on	Ep1 Auto	Freq control
02	-	-	-	-	-	-
03	-	-	-	-	-	-

Transmission Lines (Readings taken at 16:00 hrs)

Transmission Line	MW	MVAr	A	kV
Vic 01	141	55	408	223
Vic 02	140	53	405	222
Anu 01	-	-	-	-
Anu 02	9	34	103	221
Biy 01	-193	-104	588	221
Biy 02	-190	-107	595	221
UK 01	-	-	-	-
UK 02	51	30	155	223

Nature of failure:

Equipment	Auto/ Man trip	Time of tripping	Indications/Remarks
Biyagama line 01	Auto	16:57 hrs	At Control room Annunciation window Bay 5 <ul style="list-style-type: none">• Biyagama 1 Main 2 Fault DET.FOR Rec (6DIO650)• Biyagama 1 Main 2 Z1 Distance OPE (6DIO640)• Biyagama 1 Main 2 GND fault(6DIO639)• Biyagama 1 Main 2 PH fault(6DIO638)• Biyagama 1 Main 1 Fault DET.REC (6DIO637)• Biyagama 1 Main 1 inter trip received (6DIO632)• Biyagama 1 Main 1 GND fault(6DIO626)• Biyagama 1 Main 1 PH

			<p>fault(6DIO625)</p> <ul style="list-style-type: none"> • <p>At Relay room Biyagama line protection =D70. RP 220kV</p> <ul style="list-style-type: none"> • General Trip • R Pickup • B Pickup • N Pickup • Diff Trip • CS • CR
Biyagama line 02	Auto	16:57 hrs	<p>At Control room Annunciation window Bay 6</p> <ul style="list-style-type: none"> • Biyagama 2 Main 1 GND (6DIO674) • Biyagama 2 Main 1 Fault DET.FOR Rec (6DIO685) • Biyagama 2 Main 2 PH Fault(6DIO686) • Biyagama 2 Main 2 Fault DET. FOR REC (6DIO714) <p>At Relay room Biyagama line02 protection = D80. RP 220kV</p> <ul style="list-style-type: none"> • General Trip • R Pickup • N Pickup • Diff Trip • O/C E/F • CS
Anuradapura 02	Auto	16:57hrs	<p>At Control room Annunciation window Bay 2</p> <ul style="list-style-type: none"> • Backup Prot. Operated <p>At Relay room Anuradapura line 02 protection = D20.RP</p> <ul style="list-style-type: none"> • General Trip • R pickup • Y pickup • B pickup • N pickup • O/C E/F • CS
Upper Kotmale 02	Auto	16:57hrs	<p>At Control room Annunciation window Bay 4</p> <ul style="list-style-type: none"> • N/A

			<p>At Relay room UKHP 02 line protection =</p> <ul style="list-style-type: none"> • Main 2 protection (ABB 7sa52) <ul style="list-style-type: none"> ◆ Ground fault
Victoria 01	Auto	16:57hrs	<p>At Control room Annunciation window Bay 1</p> <ul style="list-style-type: none"> • N/A <p>At Relay room Victoria line 01 protection =WL5 +RAD6</p> <ul style="list-style-type: none"> • Main 1 Protection distance relay <ul style="list-style-type: none"> ◆ 3-Pickup L3 ◆ 4-picup-E
Victoria 02	Auto	16:57hrs	<p>At Control room Annunciation window Bay 2</p> <ul style="list-style-type: none"> • N/A <p>At Relay room Victoria line 02 protection =D40 RP 220 kV</p> <ul style="list-style-type: none"> • F871 relay <ul style="list-style-type: none"> ◆ B-Pickup ◆ N pickup ◆ Comm Fail • F872 relay <ul style="list-style-type: none"> ◆ R pickup ◆ B pickup ◆ N pickup
Unit 01	Auto	16:57hrs	<p>At Control Room</p> <ul style="list-style-type: none"> • AVR failed • 340 CB Trip Circuit Faulty • Non Urgent Electrical Fault <p>At Relay Room</p> <ul style="list-style-type: none"> • RAA1-U01 Generator Cable Panel <ul style="list-style-type: none"> ○ RED 670 <ul style="list-style-type: none"> ▪ 08 Y F881 Trip ○ Ex TR F87T <ul style="list-style-type: none"> ▪ 2 Relay Pickup ▪ 8 2nd Harmonic BLK • D11 RP 220/13.8kV Gen Trafo-1 <ul style="list-style-type: none"> ○ F87T Diff Main 1 Relay <ul style="list-style-type: none"> ▪ Relay Pickup ▪ 2nd Harmonic Blk ○ F87N TR REP Main 1 relay <ul style="list-style-type: none"> ▪ 2 Relay Pickup

			At Power House <ul style="list-style-type: none"> • Protection Operated • 400V VT fuse failed
Ventilation Plant	Auto	16:57hrs	Total Power failed

3. Restoration

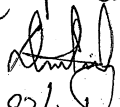
Equipment	Restored time
CB 510 CB 530	17.10 hrs
CB210 CB230	17:16 hrs
CB 610 CB 630	17:19 hrs
Unit 01 (synchronized only)	17:40 hrs

4. Brief description of incident by officer in charge [OEE] at that time:

Biyagama line 01, line 02 and Anuradapura Line 02 Tripped with indications of Differential trip and overcurrent. The unit 01 synchronized breaker tripped at the same instance and the ventilation plant failed due to Power failure. Auxiliary power was at HAD 6. Diesel Backup generator operated successfully.

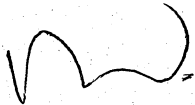
5. Remedial actions taken to avoid reoccurrence of such failure / [EE (M)'s note]:

The tripping may be due to an outside fault. No faults were detected in the Kotmale machines or switchyard equipment.


02/12/2014

6. Remarks

Not due to a fault in Kotmale
Machines or switchyard.



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Officer In-Charge of the Power Station

CHIEF ENGINEER

Kotmale Power Station

Ceylon Electricity Board

MAWATURA

Date: 2014/12/02

Copy: DGM (MC) - f.i. Pl.