

Your Ref: PUC/LIC/2025/NSO/60

My Ref: CEO/NSO/ORG/04

Date: 23 October 2026

Director General
Public Utilities Commission of Sri Lanka



Total System Failure Occurred on 17 October 2026 – Preliminary Report

This refers to your letter dated 19 October 2026 requesting a preliminary report on the total system failure occurred on 17.10.2026.

Accordingly, the preliminary report prepared by NSO (Pvt) Ltd. is attached herewith for your information.

M.B.S. Samarasekera

Eng. M.B.S. Samarasekara
Chief Executive Officer (Actg.)
National System Operator (Pvt.) Ltd.

Eng. M.B.S. Samarasekara
Actg. Chief Executive Officer (NSO)

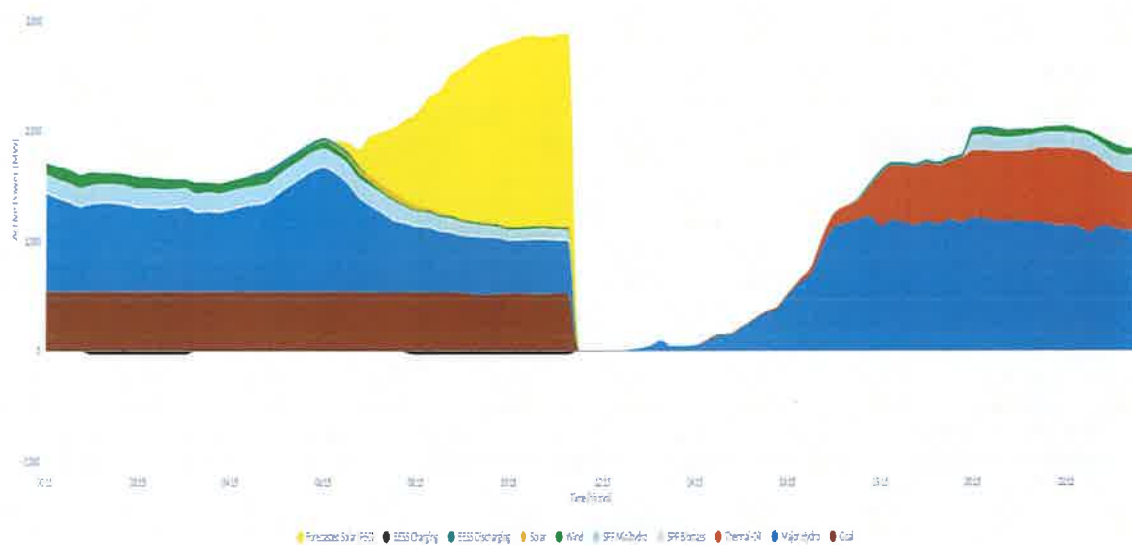
Copy: Chairman, NSO - f.i.pl.
CEO, EDL (Pvt) Ltd. - f.i.pl.
CEO, EGL (Pvt) Ltd. - f.i.pl.
CEO, NTNSP (Pvt) Ltd. - f.i.pl.
CTO, NSO (Pvt) Ltd - f.i.pl.
Director (SO) - f.i.pl.

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PRELIMINARY REPORT ON TOTAL SYSTEM FAILURE at 11:43hrs on October 17, 2026



National System Control Centre
National System Operator (Pvt) Limited
No 80, Parliament Road, Pelawatta
Battaramulla
Tel: 011 2787949 / 011 2787950
Fax: 011 278794

Preliminary Report on Total System Failure

Date : Saturday, October 17, 2026
Time of failure : 11:43
Weather Condition : Dry and Sunny

1.0 Description

The total system failure has initiated at 11:43:29hrs. Based on the observations at the National System Control Centre, LVPP Unit 01 rapidly de-loaded from the unit net generation of 187MW to 5MW within 450ms, resulting of a decline in system frequency. Further, it has been observed that the system frequency has dropped from 49.906Hz to 48.75Hz within 02 Seconds. As there were no any observation in tripping of dispatchable generation power plants, this might be due to the rejection of non dispatchable generation resources connected to the power system at that time.

Subsequently, all under frequency load shedding (UFLS) protection scheme stages (05 Stages) operated, as detailed in the separately attached document. A total system failure occurred at 11:43:59hrs, with all dispatchable generating units tripping due to under frequency/Under Voltage, except Victoria unit 03 and Old Laxapana Stage-I which remained spinning at no load.

System restoration commenced immediately just after the blackout by following the standing instruction procedures and proceeded simultaneously through four main systems namely, the Mahaweli System (Kotmale and Victoria), the Laxapana System (New Laxapana and WPS), the Samanala/Southern System (Samanalawewa and Kukule), and the Colombo System (KPS GT 05). The restoration started with the synchronization of Kothmale Unit 01 at 12:11hrs and the total system (i.e. All GSSs) was restored by 16:58hrs. The restoration of entire national transmission system was completed within 05 hours and 15 minutes after the Total System Failure.

2.0 Pre Fault Conditions

2.1 Generation System

2.1.1 Generation data at 11:43:30hrs.

	Active Power (MW)	Reactive Power (MVar)
Laxapana Complex	137	25
Mahaweli Complex	194	4
Samanala Complex	149	12
LVPP	529	106
Thermal Complex	0	6
IPP	0	0
Small Hydro(EGL)	3	0
Mini Hydro (IPP)	80	0
Wind	15	0
Biomass	14	0
Ground Mounted Solar	14	0
Shunt reactive power	0	143
Total Load	1135	296
Estimated Rooftop Solar (P50)	1749	0
	Active Power (MW)	Reserve Margin (%)
Spinning Reserve	332.5	29.3

Frequency Control	Victoria Unit 01
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2.1.2 Scheduled Power Plant Outages

	Power Station	Unit	Outage Nature	Released Date
1	Samanalawewa	1	Annual Maintenance	2026.10.06
2	Victoria	2	Annual Maintenance	2026.10.07

2.1.3 Breakdown Power Plant Outages

	Power Station	Unit	Outage Nature	Released Date
1	Upper Kothmale	2	Breakdown	2026.10.16

2.2 Transmission System

2.2.1 Opening points of 220kV and 132kV system Ring connections

- 1 Havelock - Dehiwala 132kV cable from Havelock end
- 2 Kolonnawa - Sri Japura - Pannipitiya 132kV both ccts from Kolonnawa end
- 3 Ambalangoda - Mathugama both ccts from Ambalangoda end
- 4 Ukuwela 132kV B/C
- 5 Badulla 132kV B/C, Uma Oya 132kV B/C
- 6 Katunayake - Bolawatta - N/Chilaw 132kV cct from Katunayake end
- 7 Katunayake - Bolawatta - Pannala 132kV cct from Katunayake end
- 8 Puttalam - New Anuradhapura 132kV Cct 01 & 02 from New Anuradhapura end
- 9 Colombo E - Kolonnawa cable from Cololombo E end

2.2.2 Scheduled Transmission Network Outages

- 1 New Anuradhapura - Mannar 220kV cct 01
- 2 Seethawaka - Kolonnawa 132kV cct
- 3 Biyagama - Kotugoda 220kV cct 01
- 4 Kelanithissa 220/132kV TF 01

2.2.3 Breakdown Transmission Network Outages

- 1 Colombo E - Kolonnawa cable from Colombo E 132kV CB
- 2 Veyangoda 220/132kV TF 01
- 3 Kothmale 630 CB connecting Kirindiwela 220kV cct 02

3.0 Failure Sequence Summary of Dispatchable Generator Units (Initiating incident and Initial time in a summary)

Equipment/Line	Failed Time as Provided by the Plant	SCADA Load reading at 11:43:30hrs.	Indication/Reason
1 LVPP Unit 01	11:43:40	187MW, 28MVar	Drum level low low
2 LVPP Unit 02	11:43:43	180MW, 40MVar	Low frequency
3 LVPP Unit 03	11:43:43	163MW, 38MVar	Frequency low low
4 New Laxapana 01 & 02	11:43:50	28MW, Syncon mode	Under frequency protection operated
5 WPS Units 01 & 02	11:43:50	20MW	Under frequency protection operated
6 Polpitiya Units 01 & 02	11:43:58	40MW	Under frequency protection operated
7 Victoria Units 01 & 03	11:43:58	78MW	Under frequency protection operated
8 Samanawewa Unit 02	11:43:58	09MW	Under frequency protection operated
9 Old Laxapana Stage I & II	11:43:58	17MW	Negative sequence
10 Canyon Units 01 & 02	11:43:58	21MW	Under frequency protection operated
11 Upper Kothmale Unit 01	11:43:59	76MW	Under voltage protection operated
12 Bowathenna	11:43:59	40MW	Under frequency protection operated
13 Broadlands Unit 01	11:43:59	11MW	Negative sequence overload
14 Uma Oya Units 01 & 02	11:43:59	61MW	Under frequency protection operated
15 Kukule Units 01 & 02	11:43:59	78MW	Under impedance trip

Note: The confirmed time data and indication data will be provided to NSCC by respective plants in due course, through the detailed incident reports.

- * The frequency controlling machine - Victoria Unit 01, increased its output from 49.94MW to a maximum of 99.47MW, within 09 seconds following the system disturbance, as recorded by the plant's Data Acquisition System.

4.0 Restoration Summary

Restored Duration	GSS/PSS
1 Restored within half an hour (0 - 1/2 hr)	1
2 Restored within the next half an hour (1/2hr-1hr)	0
3 Restored within the next half an hour (1hr-1 1/2 hr)	8
4 Restored within the next half an hour (1 1/2hr-2hr)	8
5 Restored within the next half an hour (2hr-2 1/2 hr)	3
6 Restored within the next half an hour (2 1/2 hr-3hr)	9
7 Restored within the next half an hour (3 hr-3 1/2hr)	6
8 Restored within the next half an hour (3 1/2 hr-4 hr)	6
9 Restored within the next half an hour (4 hr-4 1/2 hr)	21
10 Restored within the next half an hour (4 1/2 hr-5 hr)	22
11 Restored within the next half an hour (5 hr-5 1/2 hr)	17
12 More than 5 1/2 hour	0

	GSS	Time	Primary	Time
First Energized	Biyagama	12:37	Sub J	13:04
Last Energized	Nadukuda	16:58	Sub H	18:30

5.0 Unrestored and Delayed Power Plants

5.1 Unrestored Power Plants

Equipment	Reason/Comment
LVPP unit 01	Diaphragm replacement work
LVPP unit 02	Diaphragm replacement work
LVPP unit 03	Diaphragm replacement work
Polpitiya Unit 02	Generator TF Buchholz prot. operated
Ukuwela Unit 01	Generator TF Differential prot. operated

5.2 Delayed Power Plants

Plant	Plant Feeder Energized Time	NSCC Start Instruction Issued Time	Synchronized Mode	Synchronized Time	Reason for the Delay
WCP (Note 01)	16:37	16:40	CC	20:42	Turning Gear system issue
Sobadhanavi (Note 02)	17:07	17:11	OC	17:55	Start Up Sequence issue
KCCCP (Note 03)	16:37	16:37	OC	19:45	Unavailability of stand by DG from 14:45
KCCPS2 (Note 04)	17:01	17:01	OC	17:51	Systems normalizing after restoring the supply

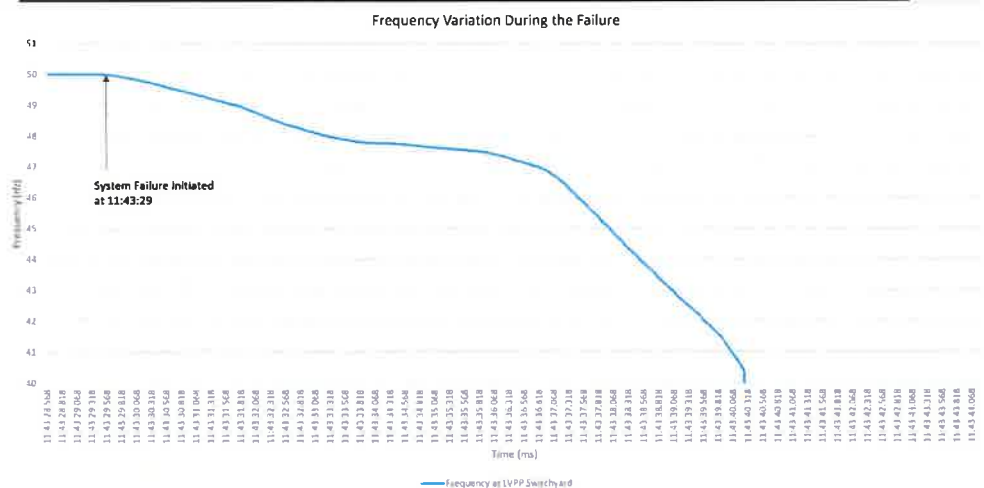
Note 01: The WCP plant feeder was energized through Kerawalapitiya GSS at 16:37 hrs. However, the plant auxiliary system failure had affected its turning gear system, and plant officers recommended that the steam turbine required at least additional 04 hours on turning gear before startup. As WCP is contractually available for dispatch only in CC mode at 270 MW, NSCC issued the dispatch instruction at 16:40 hrs to synchronize and reach full load. Under the prevailed warm start conditions, synchronization was expected within 45 minutes, with full load approximately reaching 2.5 hours thereafter. However, at 16:55 hrs, the plant revised its declared availability from 270 MW to 0 MW for 17:00–21:00 hrs. Following completion of the required turning gear operation, the plant synchronized in CC mode at 20:42 hrs and subsequently reached 80MW at 21:56hrs. The plant declared full load at 22:46 hrs, making it unavailable for the night peak.

Note 02: The Sobadhanavi plant feeder was energized through New Kerawalapitiya GSS at 17:07 hrs. The plant was available in both OC (212 MW) and CC (312 MW) modes under the prevailed cold start conditions. In OC mode, synchronization at an initial load of 10 MW approximately takes around 20 minutes, followed by a further 15 minutes to reach full load. In CC mode, synchronization takes approximately 30 minutes, followed by staying at around three hours at 10 MW and a further two hours of loading in approximately 30 MW steps to reach 312 MW. Considering the approximately five hour loading period required in CC mode and the urgent capacity requirement for the night peak, NSCC was compelled to dispatched the plant in OC mode, expecting full load within approximately 40 minutes. The first OC startup attempt failed due to a plant side issue. The second attempt succeeded, with the plant synchronizing at 17:55 hrs and reaching full load of 212 MW at 18:04 hrs, making it available for the night peak.

Note 03: The KCCP plant feeder was energized through Kelanitissa 220 kV GSS at 16:37 hrs. The plant which was in cold start up mode and was available for operation in OC mode at 100 MW and CC mode at 150 MW, with average times to reach full load of 30 minutes, and four hours respectively. However, its standby diesel generator (DG) had tripped at 14:45 hrs, and plant officers advised that the trip indications had to be reset and the DG restored before startup in either mode. The plant confirmed the standby DG availability at 19:21 hrs. Given the urgent need to restore supply and as the night peak had already passed, NSCC was compelled to dispatched the plant in OC mode. It synchronized at 19:45 hrs and reached full load (100 MW) at 20:04 hrs, having been unavailable for the night peak.

Note 04: The KCCPS2 plant feeder was energized through Kelanitissa 220 kV GSS at 17:01 hrs. The plant was in cold start up mode and was available in OC (100 MW) and CC (150 MW) modes, with average times to reach full load of 30 minutes, and 04 hours respectively. Given the urgent capacity requirement for the night peak, NSCC was compelled to dispatched the plant in OC mode, expecting full load within approximately 30 minutes with the synchronization. The plant synchronized at 17:51 hrs and reached full load of 100 MW at 18:10 hrs, making it available for the night peak.

6.0 Frequency Profiles Vs Time during the incident at 11:43hrs on 17.10.2026 (As recorded by DFR)



Prepared By:

EE (SS)

Checked By:

CE (SO)

(Covering)

M. A. S. Samarasekera
DIRECTOR (NSCC)

Annex 01: Report on Operation of Under Frequency Load Shedding on 17.10.2026

Report on Operation of Under Frequency Load Shedding

Date : 2026.10.17

Time : 11:43 hrs.

Reason : LVPS Unit 01 deloading within 450 ms

Rejected Generation :

183 MW

NOTE:

Doesn't include the embedded generation rejection

Total generation (recorded) prior to tripping:

1135 MW

1135

MVAr

330

Frequency Control :

Victoria Unit 01

Spinning Reserve
(MW, %)

332.5MW/ 29.3%

Nadir Frequency :

0 Hz

GSS	Feeder No	Stage	OFF TIME	ON TIME	LOAD / (A)	OFF TIME	ON TIME	LOAD / (A)
Athurugiriya	3	I	11:43	17:23	200			
	6	I	Not op: (50A)					
	8	I	Not op: (142A)					
Rathnapura	1	I	11:43	19:35	33			
Mathugama	1	I	Not op: (+13A)					
	8	I	No Feeder					
	5	II	No Feeder					
	10	II	No Feeder					
Kotugoda	6	III	No Feeder					
	11	I	11:43	12:54	80			
	13	I	11:43	12:50	120			
	3	II	11:43	13:09	120			
	9	IV	11:43	13:10	160			
	1	df/dt	11:43	13:22	0			
Sapugaskanda	12	df/dt	11:43	13:01	44			
	9	I	11:43	18:17	0			
	11	I	11:43	14:49	18			
	4	II	11:43	14:54	22			
	7	II	11:43	18:18	162			
	6	III	11:43	14:58	41			
	3	IV	11:43	15:23	154			
Kosgama	8	IV	11:43	18:19	0			
	1	I	Already off					
	8	I	Already off					
	2	II	Already off					
Naula	5	IV	Already off					
	8	I	11:43	20:17	58			
	2	II	Not op: (+12A)					
	3	II	11:43	20:19	47			
Habarana	7	II	Not op: (-9A)					
	3	I	11:43	16:55	40			
	1	II	11:43	16:55	70			
	6	II	11:43	16:54	80			
	7	II	11:43	16:53	50			
	2	df/dt	Already off					
New Galle	4	df/dt	Already off					
	3	I	11:43	13:07	31			
	11	I	11:43	13:21	43			
	1	df/dt	11:43	13:10	6			
	4	df/dt	11:43	13:31	64			
Thulhiriya	6	df/dt	11:43	16:14	110			
	5	I	11:43	19:58	75			
	6	I	11:43	20:28	40			
	1	III	11:43	20:21	73			
	4	III	11:43	15:10	34			
Matara	2	IV	11:43	18:35	74			
	6	I	Already off					
	4	III	Already off					
	8	III	11:43	16:32	98			
	1	df/dt	Already off					
	2	df/dt	Already off					
	7	df/dt	11:43	16:18	46			

GSS	Feeder No	Stage	OFF TIME	ON TIME	LOAD / (A)	OFF TIME	ON TIME	LOAD / (A)
Badulla	6	I	11:43	15:32	19			
	3	III	11:43	14:36	23			
	5	III	Not op: (-21A)					
	1	IV	11:43	14:42	32			
Biyagama	7	I	11:43	14:24	81			
	11	I	11:43	18:26	43			
	12	I	11:43	14:22	53			
	10	III	11:43	14:20	66			
	13	III	Already off					
	14	III	11:43	18:30	48			
	4	IV	11:43	21:56	294			
	6	IV	11:43	21:35	8			
Kelaniya	8	IV	11:43	21:56	133			
	2	I	11:43	15:54	101			
	3	I	11:43	17:23	75			
Maho	1	df/dt	Already off					
	1	I	11:43	16:52	15			
	3	I	11:43	16:55	34			
	6	II	11:43	16:53	31			
Pallekele	8	II	11:43	20:05	26			
	1	I	11:43	18:52	29			
	3	I	11:43	20:42	20			
	5	I	11:43	21:07	45			
	6	II	Already off					
Beliatta	9	II	11:43	20:17	48			
	4	II	11:43	16:53	48			
	5	II	Already off					
Ambalangoda	6	II	11:43	17:02	11			
	2	II	11:43	16:07	24			
	3	II	11:43	16:22	41			
	4	II	Not op: (+77A)					
Kiribathkumbura	6	II	11:43	18:18	68			
	12	II	Already off					
	2	III	Already off					
	3	III	11:43	20:24	81			
	7	III	11:43	21:07	41			
	8	III	11:43	18:12	43			
	9	III	Already off					
Dehiwala	4	IV	11:43	16:12	43			
	7	II	11:43	18:17	16			
	6	III	11:43	18:15	33			
	8	III	11:43	18:16	20			
	1	IV	11:43	17:58	9			
Rathmalana	3	IV	11:43	18:16	36			
	7	II	Already off					
	9	II	Already off					
	6	IV	11:43	19:36	102			
	2	df/dt	11:43	17:08	-9			
Veyangoda	3	df/dt	11:43	17:20	113			
	7*	II	11:43	21:23	20			
	3	III	Already off					
	4	IV	Already off					
	6	IV	11:43	19:41	53			
Panadura	8	V	11:43	16:47	94			
	3	II	11:43	16:37	20			
	2	V or df/dt	11:43	17:44	-24	UFLS cannot switch off		
	4	V or df/dt	Spare					
Kilinochchi	5	V or df/dt	11:43	19:40	1			
	2	III	UFLS auto off					
Aniyakanda	4	III	UFLS auto off					
	3	III	11:43	13:02	98			
	7	III	11:43	15:19	116			
	1	IV	11:43	13:17	82			
	5	df/dt	11:43	13:07	124			

GSS	Feeder No	Stage	OFF TIME	ON TIME	LOAD / (A)	OFF TIME	ON TIME	LOAD / (A)
Pannipitiya	3	III	11:43	15:46	10			
	6	III	No Feeder					
	9	III	11:43	16:39	100			
	10	III	11:43	15:40	13			
	1	IV	11:43	16:39	28			
	2	IV	11:43	15:57	105			
	4	IV	11:43	16:13	125			
	7	IV	Already off					
	8	IV	11:43	16:38	43			
	5	V	11:43	15:46	13			
Madampe	4	III	11:43	21:31	50			
	7	III	Already off					
	12	V or df/dt	11:43	20:19	181			
	2	V or df/dt	11:43	16:21	160			
	3	V or df/dt	11:43	21:35	0			
Ampara	3	IV	11:43	18:53	0			
	5	IV	11:43	18:19	0			
Sub C	4(2)	III	11:43	17:39	67			
	9(5142)	III	11:43	17:40	16			
	10(1753)	III	11:43	17:40	56			
	1(5141)	IV	11:43	17:34	15			
	3(30)	IV	11:43	17:36	17			
	7(4)	IV	11:43	17:42	55			
	15(1)	IV	11:43	17:07	32			
Sub A	2(525)	IV	11:43	16:38	114			
	5(1137)	IV	11:43	17:29	177			
	6(77)	IV	11:43	17:43	90			
	7(1754)	IV	11:43	17:44	150			
	8(14)	IV	Not op: (+96A)					
	12(22)	IV	11:43	16:38	112			
	13(1011)	IV	11:43	16:39	129			
	15(571)	IV	11:43	16:42	101			
Sub I	1(11)	IV	11:43	17:42	0			
	5(18)	IV	11:43	17:50	60			
	7(45)	IV	11:43	*next day	32			
	8(620)	IV	11:43	17:35	62			
	11(1130)	IV	11:43	17:51	35			
	13(1547)	IV	11:43	17:45	85			
	15(602)	IV	11:43	17:47	50			
	17(343)	IV	11:43	17:43	79			
	18(1240)	IV	11:43	17:47	52			
Sub E	1(981)	IV	Spare					
	3(586)	IV	11:43	17:16	97			
	4(21)	IV	11:43	17:14	85			
	6(885)	IV	11:43	17:14	100			
Sub M	2(847)	IV	11:43	18:33	75			
	13(1735)	IV	11:43	18:31	77			
Sub N	8(480)	IV	11:43	15:47	27			
	9(1721-1)	IV	11:43	17:21	202			
	10(1721-2)	IV	Not op: (0A)					
	18(1698-2)	IV	11:43	18:03	105			
Kolonnawa GIS	G1	IV	11:43	14:04	135			
	G2	IV	11:43	14:08	141			
Horana	5	IV	Removed					
	2	df/dt	11:43	16:25	20			
	3	df/dt	11:43	19:38	124			
	4	df/dt	11:43	19:04	94			

GSS	Feeder No	Stage	OFF TIME	ON TIME	LOAD / (A)	OFF TIME	ON TIME	LOAD / (A)
Pannala	3	V	11:43	16:12	55			
	5	V	11:43	15:03	74			
	2	df/dt	11:43	15:32	139			
	4	df/dt	Already off					
Kurunegala	6	V	11:43	18:21	54			
	7	V or df/dt	11:43	20:07	58			
	2	df/dt	Not op: (+21A)					
	3	df/dt	11:43	18:21	107			
S'Japura	4	df/dt	11:43	19:59	54			
	2	df/dt	11:43	15:16	31			
	3	df/dt	11:43	16:52	45			
	4	df/dt	11:43	15:06	30			
Bolawatta	5	df/dt	11:43	15:22	30			
	6	df/dt	11:43	16:41	31			
	2	df/dt	11:43	15:32	22			
	3	df/dt	11:43	15:30	88			
Katunayaka	4	df/dt	11:43	15:35	119			
	5	df/dt	11:43	15:26	81			
	8	df/dt	11:43	15:40	73			
	10	df/dt	11:43	15:45	113			
Deniyaya	1	df/dt	11:43	13:22	59			
	2	df/dt	11:43	15:26	5			
	7	df/dt	11:43	13:26	66			
	8	df/dt	11:43	15:34	16			
	1	df/dt	11:43	19:10	11			
	6	df/dt	11:43	16:18	-25			

UFLS Stage	Shedded 33kV load in [A]	Shedded 11kV load in [A]	Shedded load in [MW]	Shedded load as a %
Stage I	1253.0	0.0	68.8	6.1%
Stage II	904.0	0.0	49.6	4.4%
Stage III	988.0	139.0	56.8	5.0%
Stage IV	1757.0	2215.0	137.0	12.1%
Stage V	290.0	0.0	15.9	1.4%
Stage V or df/dt	376.0	0.0	20.6	1.8%
df/dt	1831.0	0.0	100.5	8.9%
Total	7399.0	2354.0	449.2	39.6%

Total Rejected Generation MW 183.0 16.1%

Total Shedded 33kV Load in [A] 7399.0

Total Shedded 11kV Load in [A] 2354.0

Total Shedded 11/33kV Load in MW 449.2 39.6%

Total generation (recorded) prior to tripping: 1135.0

power factor : 0.96

Prepared by

Checked by