Ministry Of Energy and Natural Resources

BHUTAN POWER SYSTEM OPERATOR

THIMPHU: BHUTAN

ANNUAL TRANSMISSION SYSTEM PERFORMANCE REPORT FOR THE YEAR 2022

JANUARY-2023

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1.0 INTRODUCTION

In compliance to Grid Code Regulation 2008, Clause No. 6.14.2.1, this office prepared an annual report covering the performance of the Transmission System and details as required by the Ministry and the Authority annually for development of power system master plan and formulation of other policy decisions, thus this report contains the performance of Transmission System for the year 2022.

All the index and other calculations in this report have been executed based on the data received from substations and generating plants.

2.0 PERFORMANCE OF GENERATING STATIONS

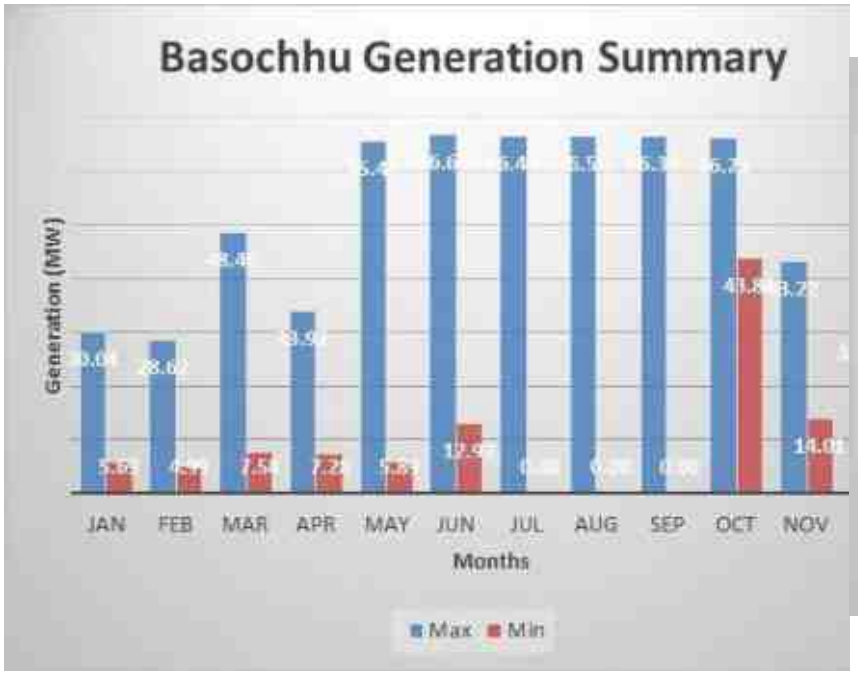
2.1 POWER GENERATION

The maximum individual plant generation was recorded as 1122.00 MW by the Tala Hydropower Plant, followed by 785.70 MW by Mangdichu Hydropower Plant.

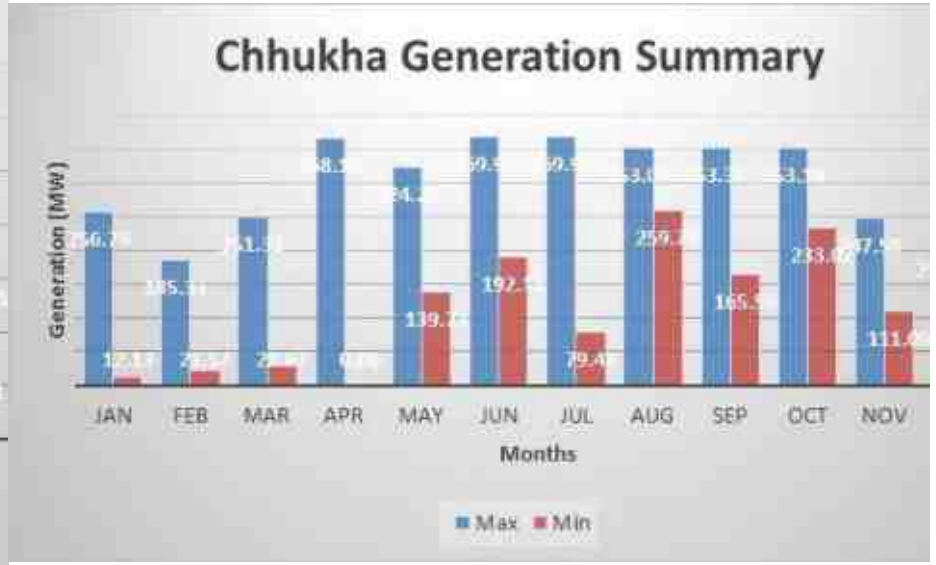
Table: 2.1.1 Monthly maximum and minimum generation summary

Sl. No	Hydropower Plant		Monthly Maximum and Minimum Generation (MW)												Max/Min of year (MW)	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
1	BHP	Max	30.04	28.62	48.46	33.92	65.46	66.64	66.40	66.58	66.39	66.25	43.22	31.30	66.64	
		Min	5.69	4.99	7.58	7.28	5.89	12.92	0.00	0.00	0.00	43.80	14.01	22.90		0.00
2	CHP	Max	256.79	185.33	251.31	368.16	324.25	369.94	369.99	353.00	353.39	353.14	247.58	211.65	369.99	
		Min	12.13	21.57	28.67	0.00	139.73	192.13	79.47	259.79	165.59	233.02	111.09	48.38		0.00
3	THP	Max	0.00	0.00	480.00	820.00	670.00	988.00	1,122.00	1,122.00	1,122.00	1,122.00	560.00	400.00	1,122.00	
		Min	0.00	0.00	110.00	0.00	170.00	100.00	557.00	830.00	734.00	470.00	230.00	120.00		0.00
4	KHP	Max	48.24	48.96	65.64	196.45	270.23	66.00	66.00	66.00	66.00	66.00	56.60	32.63	270.23	
		Min	8.86	10.03	10.06	0.00	31.61	29.63	0.00	0.00	0.00	33.00	20.95	20.03		0.00
5	DHP	Max	32.99	47.50	40.25	45.98	53.38	126.92	95.10	100.70	100.79	100.70	52.27	40.03	126.92	
		Min	22.47	22.93	22.17	0.00	17.97	22.70	5.50	1.13	40.30	48.74	31.31	23.06		0.00
6	MHP	Max	280.21	294.88	341.11	595.22	593.15	785.70	594.19	729.82	729.92	729.34	325.11	211.65	785.70	
		Min	12.22	19.30	20.87	0.00	105.79	271.01	193.19	395.37	232.07	279.19	75.37	48.38		0.00

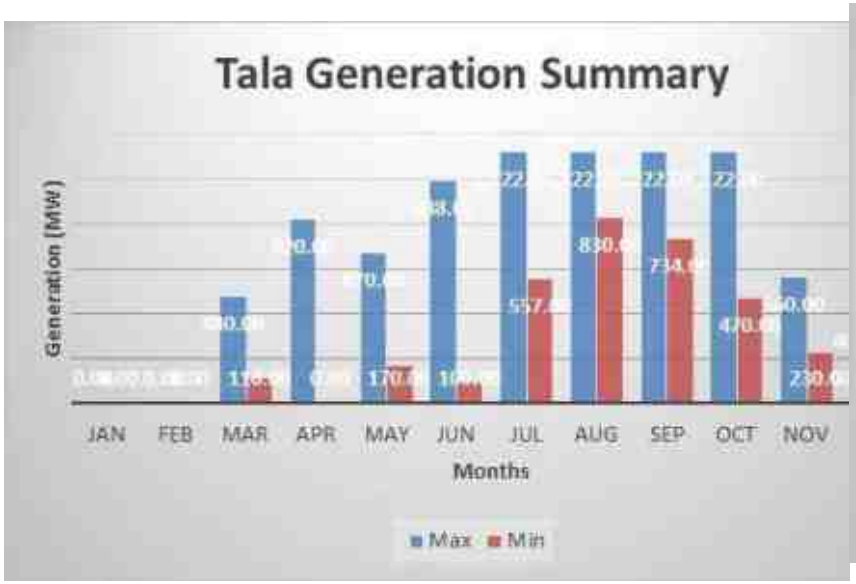
Graph: 2.1.1 Basochhu generation summary



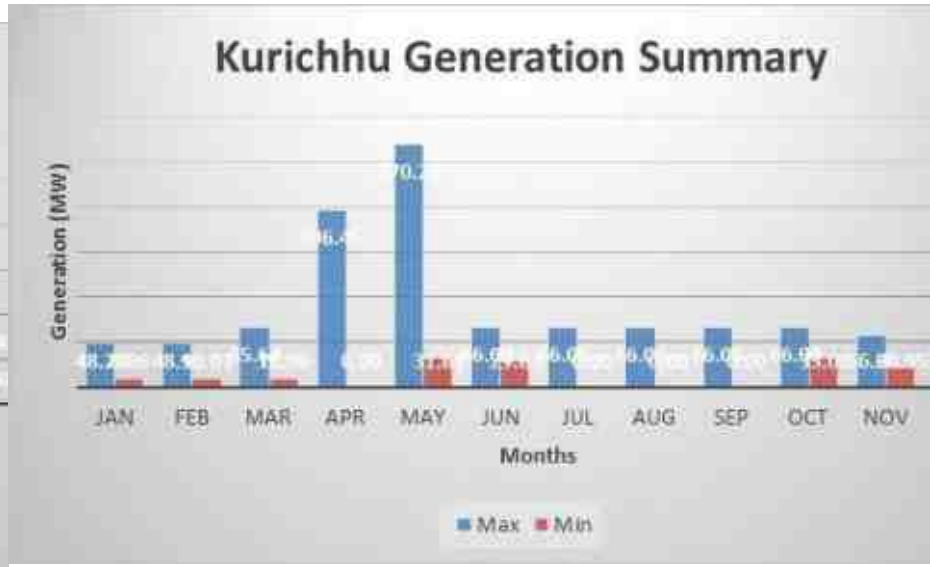
Graph: 2.1 Chhukha generation summary



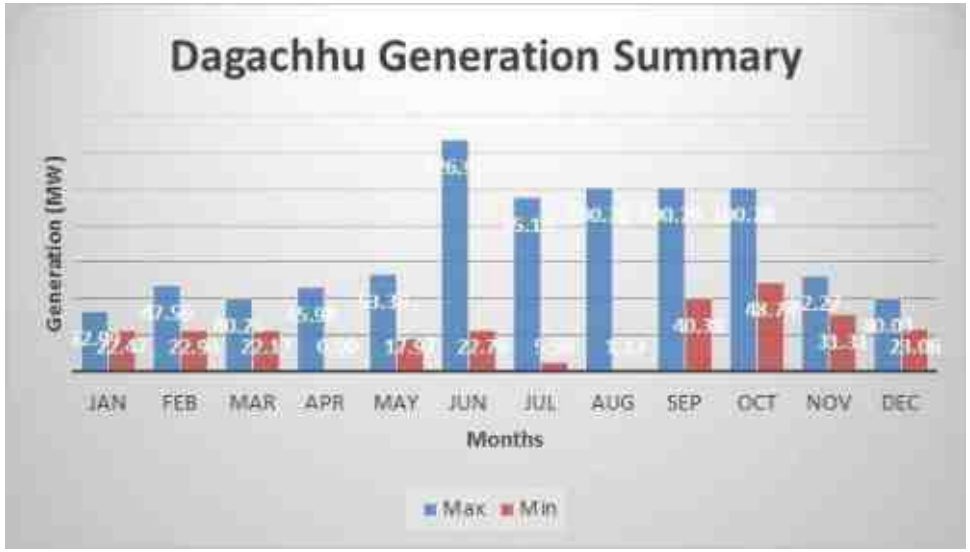
Graph: 2.1.3 Tala generation summary



Graph: 2.1.4 Kurichhu generation summary



Graph: 2.1.5 Dagachhu generation summary



Graph: 2.1.6 Mangdichu generation summary

2.2 PLANT FACTOR

The plant factor of each generating plant was calculated as below:

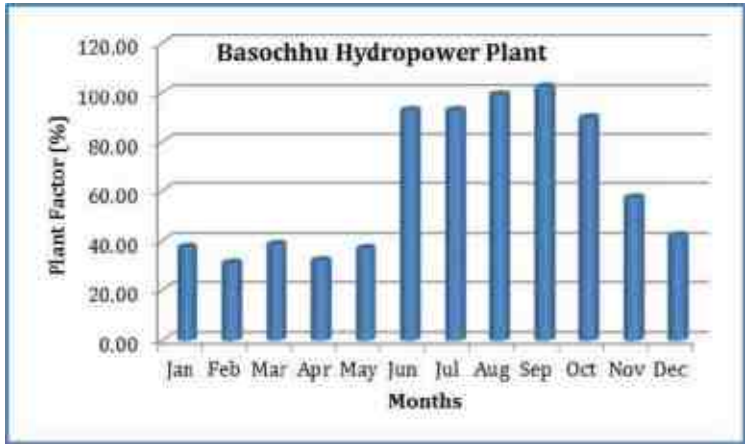
Plant factor = (Actual output of a plant over a period of time) / (Output when operated at name plate rated capacity for entire time)

= (Total energy plant has produced over a period) / (Total energy plant would produce when operated at full rated capacity)

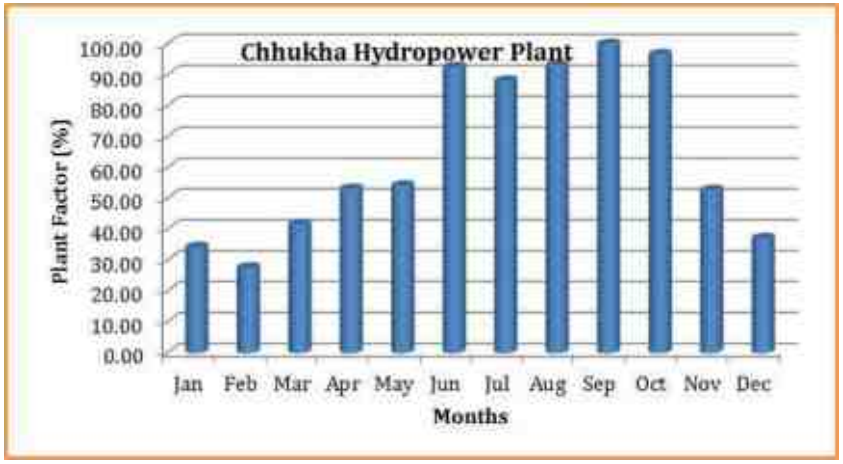
Table: 2.2.1 Monthly plant factor of the hydropower plants

Sl. No	Hydropower Plant	Monthly Plant Factor (%)												Max/Min of year (%)	
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Max	Min
1	BHP	37.20	30.97	38.40	31.91	36.78	92.28	92.30	98.79	102.19	89.41	56.90	41.87	102.19	30.97
2	CHP	33.96	27.31	41.33	52.76	53.84	92.24	87.80	92.73	99.67	96.38	52.42	36.82	99.67	27.31
3	THP	0.00	0.00	14.70	34.78	34.96	56.63	92.25	106.34	101.93	78.29	35.11	23.84	106.34	0.00
4	KHP	35.24	29.24	55.65	82.25	95.34	104.95	106.03	109.72	103.37	104.25	61.95	43.05	109.72	29.24
5	DHP	21.43	19.23	21.43	17.54	19.21	58.65	66.56	74.36	68.47	58.97	32.35	23.22	74.36	17.54
6	MHP	30.31	28.92	23.73	23.04	34.96	44.51	27.44	28.01	91.14	28.95	5.56	0.00	91.14	0.00

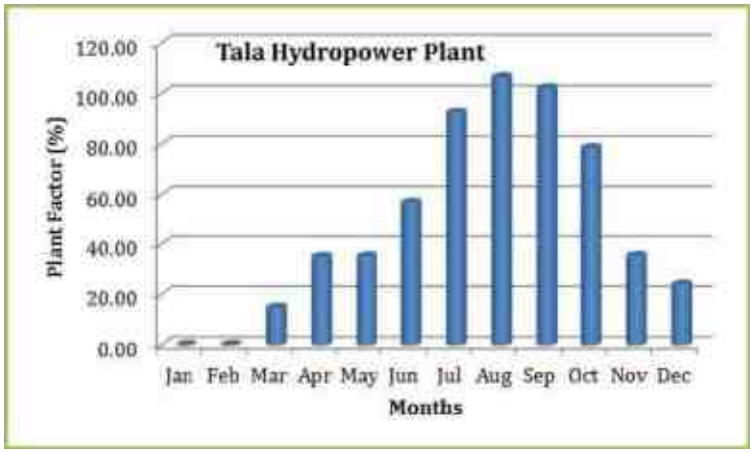
Graph: 2.2.1 Plant factor of Basochhu Hydropower Plant



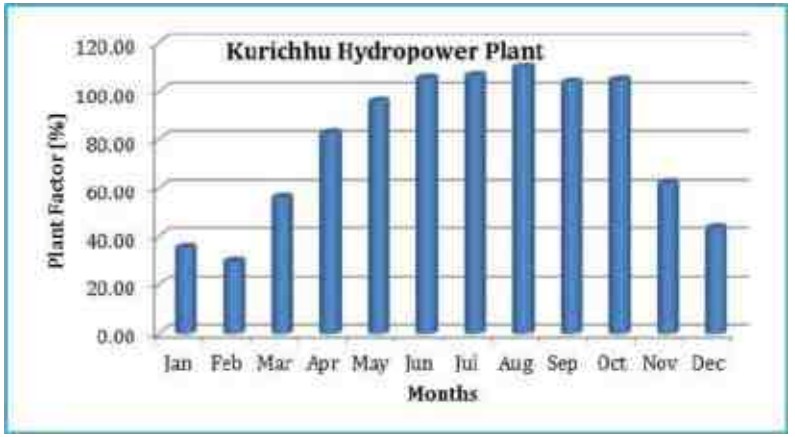
Graph: 2.2.2 Plant factor of Chhukha Hydropower Plant



Graph: 2.2.3 Plant factor of Tala Hydropower Plant

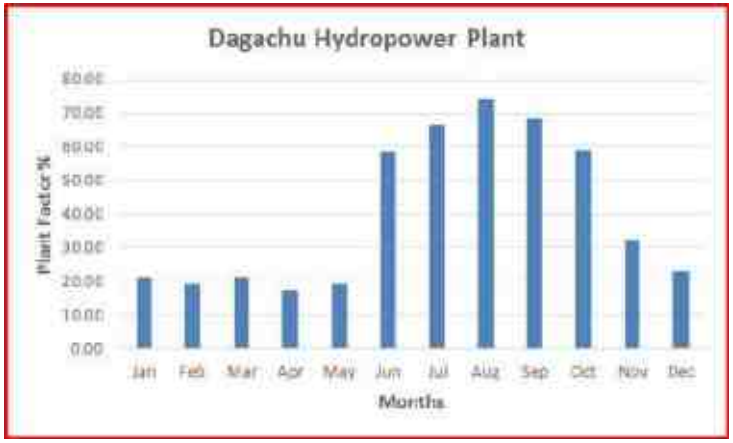


Graph: 2.2.4 Plant factor of Kurichhu Hydropower Plant



Graph: 2.2.4 Plant factor of Dagachhu Hydropower Plant

Graph: 2.2.4 Plant factor of Mangdichu Hydropower Plant



3.0 PEAK DEMAND, ENERGY AVAILABILITY AND REQUIREMENT FOR THE COUNTRY

Calculation of coincidental peak load for the eastern grid, western grid and national load, we use the following methods:

1. *National Demand = (Sum of all total generation of each plant) – (Sum of all Export/Import)*
2. *National Demand = (Sum of all feeders loading at hydropower plant) – (Sum of all Export/Import)*
3. *National Demand = (Sum of all substation loading)*

The national load calculated using method-1 is considered in the report.

3.1 NATIONAL LOAD

The national peak demand till now is recorded at **629.61MW** which was occurred on December 28, 2022 at 18:00 hours. This is calculated by summation of Generation minus Export/Import.

Table3.1. the National Peak Demand since 2007

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Peak Load (MW)	157.36	187.05	237.17	256.95	276.24	282.44	313.94	333.41	336.52	335.87	362.09	399.35	387.66	374.53	435.35	629.61
% Growth over previous Year	-	18.87	26.79	8.34	7.51	2.24	11.15	6.20	0.93	-0.19	7.81	10.29	-2.93	-3.39	16.24	44.62

Table: 3.1.2 Monthly national peak load and corresponding generation using method- 1

Sl. No	Months	Date	Time	Total Grid (MW)		Western Grid (MW)		Eastern Grid (MW)	
				Load	Generation	Load	Generation	Load	Generation
1	Jan	4-Jan-21	19:00	577.89	618.90	390.60	282.68	36.91	336.22
2	Feb	4-Feb-21	19:00	461.32	527.33	382.78	204.72	35.55	322.61
3	Mar	4-Mar-21	19:00	430.01	514.90	325.89	211.00	26.84	303.90
4	Apr	27-Apr-22	18:00	424.55	917.11	221.84	367.68	90.13	549.43
5	May	6-May-22	18:00	417.81	926.85	178.00	444.37	87.68	482.48
6	Jun	16-Jun-22	8:00	438.47	1,545.87	369.14	954.89	128.17	590.98
7	Jul	13-Jul-22	20:00	467.95	1,399.11	491.76	1,256.08	144.03	143.03
8	Aug	18-Aug-22	15:00	540.67	1,690.17	396.15	1,492.08	54.55	198.09
9	Sep	10-Sep-22	8:00	527.18	1,800.93	436.50	1,604.50	64.90	196.43
10	Oct	25-Oct-22	18:00	530.45	1,601.27	433.09	1,381.44	81.67	219.83
11	Nov	3-Nov-22	13:00	620.02	963.42	387.37	705.04	87.76	258.38
12	Dec	6-Dec-22	13:00	629.61	900.70	367.29	478.94	69.12	421.76
National Peak Load of the year (MW)				629.61					

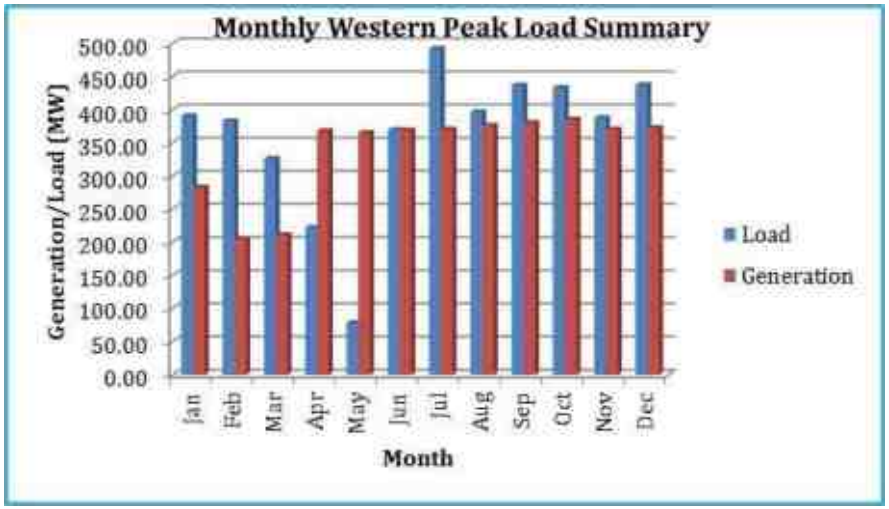
.2 WESTERN GRID PEAK LOAD

Using method-1, the peak load for the western grid was 491.76 MW which occurred on July 13, 2022.

Table: 3.2.1 Monthly western peak load and corresponding generation

Sl. No	Months	Date	Time	Western Grid (MW)	
				Load	Generation
1	Jan	17-Jan-22	17:00	390.60	282.68
2	Feb	10-Feb-22	19:00	382.78	204.72
3	Mar	1-Mar-22	21:00	325.89	211.00
4	Apr	29-Apr-22	9:00	221.84	367.68
5	May	1-May-22	5:00	78.31	365.00
6	Jun	16-Jun-22	8:00	369.14	368.80
7	Jul	13-Jul-22	20:00	491.76	370.00
8	Aug	28-Aug-22	20:00	396.15	375.80
9	Sep	13-Sep-22	19:00	436.50	380.00
10	Oct	13-Oct-22	0:00	433.09	385.00
11	Nov	2-Nov-22	19:00	387.37	370.00
12	Dec	30-Dec-22	22:00	437.23	372.58
Western Peak Load of the year (MW)				491.76	

Graph: 3.2.1 Monthly western peak load and corresponding generation



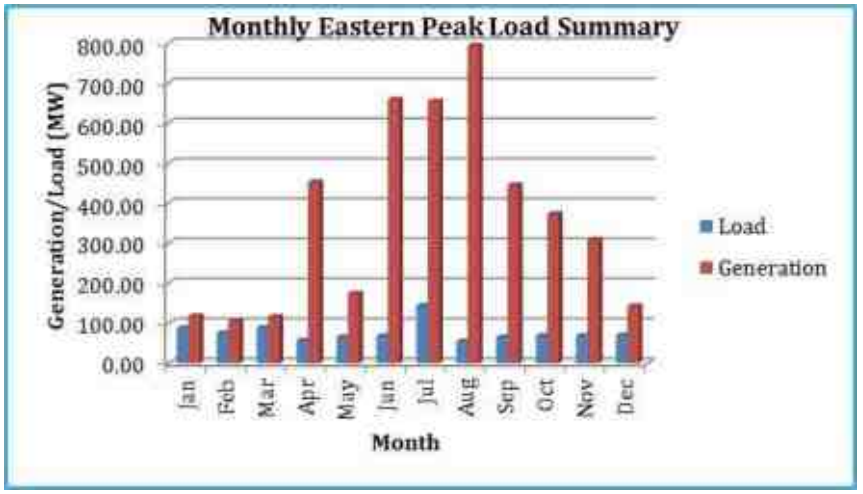
3.3 EASTERN GRID PEAK LOAD

Using method-3, the peak load for the eastern grid was 144.03 MW which occurred on July 22, 2022.

Table: 3.3.1 Monthly eastern peak load and corresponding generation

Sl. No	Months	Date	Time	Eastern Grid (MW)	
				Load	Generation
1	Jan	31-Jan-21	14:00	87.73	118.31
2	Feb	5-Feb-21	19:00	75.47	105.39
3	Mar	9-Mar-21	8:00	88.62	115.66
4	Apr	28-Apr-22	6:00	57.06	452.99
5	May	24-May-22	12:00	65.04	174.58
6	Jun	21-Jun-22	3:00	68.00	659.18
7	Jul	22-Jul-22	7:00	144.03	654.88
8	Aug	19-Aug-22	7:00	54.55	794.47
9	Sep	22-Sep-22	7:00	64.90	445.73
10	Oct	23-Oct-22	6:00	69.10	373.43
11	Nov	3-Nov-22	10:00	68.60	308.97
12	Dec	23-Dec-22	10:00	70.32	142.98
Eastern Peak Load of the year (MW)				144.03	

Graph: 3.3.1 Monthly eastern peak load and corresponding generation



4.0 EXPORT AND IMPORT OF ELECTRICITY TO/FROM NEIGHBORING COUNTRIES

4.1 EXPORT OF ELECTRICITY TO NEIGHBORING COUNTRY

Maximum export of electricity for the year was 1,280.73MW to Binaguri substation in August, 2022, followed by 310.42 MW to Birpara substation. The minimum export was 0.00 MW to Binaguri and Birpara substation.

Table: 4.1.1 Monthly power export summary

Sl. No	Substation in India		Monthly Maximum and Minimum Export (MW)												Max/Min of year (MW)	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
1	Binaguri	Max	0.00	0.00	217.46	256.45	325.09	1,108.54	1,209.00	1,280.73	1,136.36	1,071.00	496.36	332.64	1,280.73	
		Min	0.00	0.00	0.09	0.55	0.09	8.00	571.03	727.27	559.00	336.00	131.91	17.00		0.00
2	Birpara	Max	0.00	39.25	100.60	194.13	159.78	310.42	232.88	260.74	281.22	224.12	93.70	85.54	310.42	
		Min	0.00	0.66	0.27	0.30	0.28	31.91	51.30	52.32	4.30	56.09	0.38	9.90		0.00
3	Salakoti & Rangia	Max	18.99	25.11	51.10	56.48	67.16	96.56	77.24	77.91	95.51	97.88	43.27	30.09	97.88	
		Min	0.04	0.07	0.05	0.18	1.55	50.16	2.00	13.79	0.50	4.00	0.04	0.04		0.04

4.2 IMPORT OF ELECTRICITY FROM NEIGHBORING COUNTRY

Maximum import of power was 157.91 MW from Birpara substation which occurred in January, 2022 followed by 149 MW and 47.59 MW from Binaguri, Salakati & Rangia respectively.

Table: 4.2.1 Monthly power import summary

Sl. No	Substation in India		Monthly Maximum and Minimum Import (MW)												Max/Min of year (MW)	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
1	Binaguri	Max	120.36	110.56	88.36	127.00	62.18	149.00	0.00	0.00	0.00	0.00	0.00	0.00	149.00	
		Min	36.73	4.36	0.09	0.40	0.09	106.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
2	Birpara	Max	157.91	137.92	135.32	66.36	90.15	0.00	0.00	0.00	24.16	0.00	80.08	128.04	157.91	
		Min	1.44	0.46	0.05	0.02	0.01	0.00	0.00	0.00	24.16	0.00	0.02	1.75		0.00
3	Salakoti & Rangia	Max	39.23	38.54	33.74	36.52	18.53	0.00	20.02	10.24	15.60	0.00	16.08	47.59	47.59	
		Min	0.05	0.29	0.05	0.37	11.52	0.00	1.29	10.24	0.06	0.00	0.01	0.06		0.00

5.0 FREQUENCY PROFILE: MAXIMUM AND MINIMUM FREQUENCY RECORDED AND THE FREQUENCY DURATION IN DIFFERENT FREQUENCY BANDS

As per the Grid Code Regulation 2008, Clause 6.4.1 the transmission system frequency was classified into three different bands as follows:

1. *Normal state*
   The transmission system frequency is within the limit of 49.5Hz to 50.5Hz
2. *Alert state*
   The transmission system frequency is beyond the normal operating limit but within 49.0Hz to 51.0Hz
3. *Emergency state*
   There is generation deficiency and frequency is below 49.0Hz.

We base our frequency at 220kV Bus frequency at 220/66/11kV Semtokha substation in the western grid and 132kV Bus frequency at 50Hz and Kurichhu Hydropower Plant in the eastern grid.

Table: 5.0.1 Frequency profile at Semtokha substation

220/66/11kV Semtokha Substation					
Sl. No	Months	220kV Bus Frequency Operation State (%)			
		Normal	Alert	Emergency	Blackout/ Other
1	Jan	100.00	0.00	0.00	0.00
2	Feb	90.19	0.00	0.00	9.81
3	Mar	99.87	0.00	0.00	0.13
4	Apr	96.51	0.13	0.00	3.36
5	May	100.00	0.00	0.00	0.00
6	Jun	96.64	0.00	0.00	3.36
7	Jul	100.00	0.00	0.00	0.00
8	Aug	99.23	0.13	0.00	0.00
9	Sep	96.51	0.00	0.00	3.49
10	Oct	100.00	0.00	0.00	0.00
11	Nov	96.77	0.00	0.00	3.23
12	Dec	0.00	0.00	0.00	0.00
Operation State for the year		89.64%	0.02%	0.00%	1.95%

Table: 5.0.2 Frequency profile at Kurichhu Hydropower plant

60MW Kurichhu Hydropower Plant

Sl. No	Months	132kV Bus Frequency Operation State (%)			
		Normal	Alert	Emergency	Blackout/ Other
1	Jan	99.87	0.13	0.00	0.00
2	Feb	89.52	0.00	0.54	9.95
3	Mar	100.00	0.00	0.00	0.00
4	Apr	96.37	0.00	0.00	3.63
5	May	100.00	0.00	0.00	0.00
6	Jun	96.51	0.13	0.13	3.23
7	Jul	98.79	0.00	0.00	1.21
8	Aug	100.00	0.00	0.00	0.00
9	Sep	96.37	0.40	0.00	3.23
10	Oct	100.00	0.00	0.00	0.00
11	Nov	98.66	0.00	0.00	1.34
12	Dec	0.00	0.00	0.00	0.00
Operation State for the year		89.67%	0.06%	0.06%	1.88%

6.0 VOLTAGE PROFILE OF SELECTED SUBSTATIONS

As the Grid Code Regulation 2008, Clause 6.4.1, the voltage at all connection points was classified into three different bands as follows:

1. *Normal state*
   The voltages at all connection point are within the limits of 0.95 times and 1.05 times of the normal values
2. *Alert state*
   The voltage at all connection points are outside the normal limit but within the limits of 0.9 times and 1.1 times of the normal values
3. *Emergency state*
   Transmission system voltages are outside the limits of 0.9 times and 1.1 times of nominal values.

The voltage profile of 400/220/66/11kV Malbase substation in western grid and 132/33/11kV Nangkhor substation in the eastern grid are considered in the report.

Table: 6.0.1 Voltage profile at Malbase substation

400/220/66/11kV Malbase Substation									
SL No	Months	400kV Bus Voltage Operation State (%)				220kV Bus Voltage Operation State (%)			
		Normal	Alert	Emergency	Blackout/ Other	Normal	Alert	Emergency	Blackout/ Other
1	Jan	58.06	58.06	58.06	58.06	58.06	58.06	58.06	58.06
2	Feb	60.22	29.84	58.06	9.68	90.32	0.00	0.00	9.68
3	Mar	91.80	8.20	58.06	0.00	100.00	0.00	0.00	0.00
4	Apr	96.77	0.00	58.06	3.63	92.07	4.44	0.00	3.49
5	May	99.87	0.00	58.06	0.00	99.87	0.13	0.00	0.00
6	Jun	96.77	0.00	58.06	3.23	96.77	0.00	0.00	3.23
7	Jul	99.73	0.00	58.06	0.00	99.73	0.00	0.27	0.00
8	Aug	0.00	0.00	58.06	0.13	99.87	0.00	0.00	0.13
9	Sep	96.77	0.00	58.06	3.23	96.64	0.00	0.13	3.23
10	Oct	100.00	0.00	58.06	0.00	100.00	0.00	0.00	0.00
11	Nov	77.69	19.09	58.06	3.23	96.77	0.00	0.00	3.23
12	Dec	95.70	0.04	0.00	0.00	100.00	0.00	0.00	0.00
Operation State for year		81.12%	9.60%	53.23%	6.77%	94.18%	5.22%	4.87%	6.75%

Table: 6.0.2 Voltage profile at Nangkhor substation

132/33/11kV Nangkhor Substation					
Sl. No	Months	132kV Bus Voltage Operation State (%)			
		Normal	Alert	Emergency	Blackout/ Other
1	Jan	99.87	0.13	0.00	0.00
2	Feb	90.19	0.13	0.00	9.68
3	Mar	100.00	0.00	0.00	0.00
4	Apr	94.89	4.97	0.00	0.13
5	May	97.18	2.82	0.00	0.00
6	Jun	96.77	0.00	0.00	3.23
7	Jul	99.73	0.13	0.00	0.13
8	Aug	0.00	0.00	0.00	0.00
9	Sep	96.77	0.00	0.00	3.23
10	Oct	100.00	0.00	0.00	0.00
11	Nov	96.77	0.00	0.00	3.23
12	Dec	0.00	0.00	0.00	0.00
Operation State for year		81.01%	0.68%	0.00%	1.64%

7.0 MAJOR GENERATING AND TRANSMISSION OUTAGE

The summary of the major transmission outages for the eastern grid and western grid are attached as Annexure- I and Annexure- II respectively.

The outages of transmission line or transformer or any power system equipment below 66kV, tripping/outage of less than 30minutes and planned shutdown which do not cause supply interruption to the customers are not reflected.

8.0 TRANSMISSION CONSTRAINTS

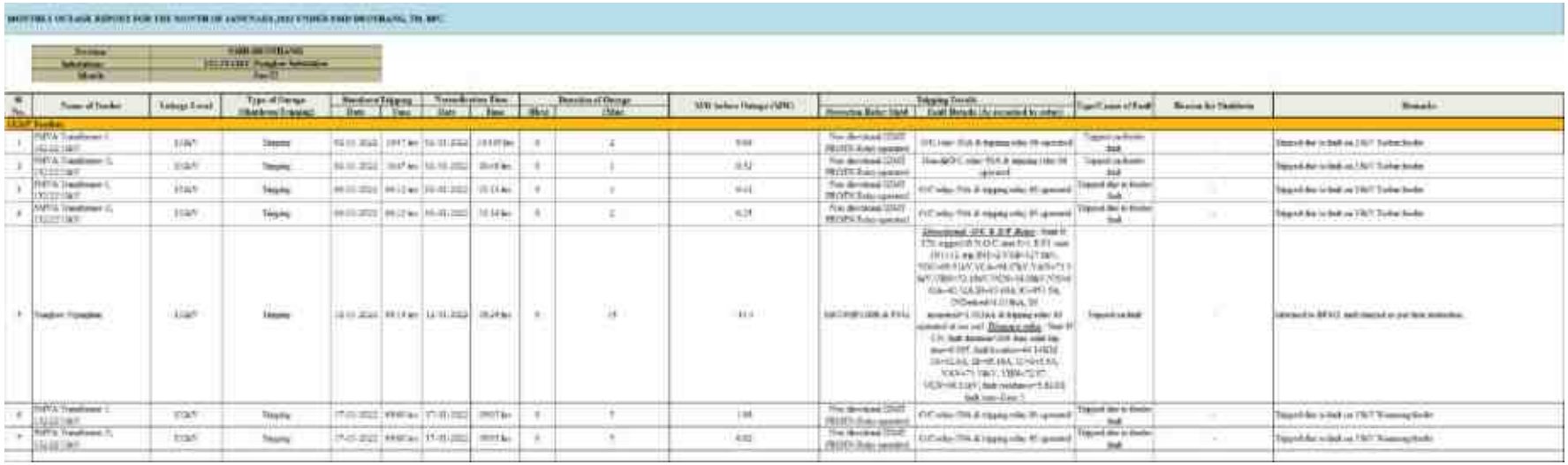
There are no instant of transmission constraints during normal condition in Bhutan Power System.

9.0 INSTANCES OF PERSISTENT OR SIGNIFICANT NON-COMPLIANCE WITHIN THE GIRD CODE REGULATION

The instance of non-compliance with the Grid Code Regulation 2008 for the year 2019 was not recorded.

Annexure- I

Eastern Grid Outages
January 2022



Division	[illegible]
Substation	[illegible]
Month	[illegible]

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Date	Shutdown/Tripping Time	Normalization Time Date	Normalization Time Time	Duration of Outage (Hrs)	Duration of Outage (Min)	MW before Outage (MW)	Tripping Details: Protection Relay Optd	Tripping Details: Fault Details (As recorded by relay)	Type/Cause of Fault	Reason for Shutdown	Remarks
										NO TRIPPING					

Division	[illegible]
Substation	[illegible]
Month	[illegible]

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Date	Shutdown/Tripping Time	Normalization Time Date	Normalization Time Time	Duration of Outage (Hrs)	Duration of Outage (Min)	MW before Outage (MW)	Tripping Details: Protection Relay Optd	Tripping Details: Fault Details (As recorded by relay)	Type/Cause of Fault	Reason for Shutdown	Remarks
[illegible]															
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]

Division	[illegible]
Substation	[illegible]
Month	[illegible]

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Date	Shutdown/Tripping Time	Normalization Time Date	Normalization Time Time	Duration of Outage (Hrs)	Duration of Outage (Min)	MW before Outage (MW)	Tripping Details: Protection Relay Optd	Tripping Details: Fault Details (As recorded by relay)	Type/Cause of Fault	Reason for Shutdown	Remarks
1	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	-	[illegible]
2	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	-	[illegible]
3	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	[illegible]	-	[illegible]
4	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	-	[illegible]

Division	[illegible]
Substation	[illegible]
Month	[illegible]

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Date	Shutdown/Tripping Time	Normalization Time Date	Normalization Time Time	Duration of Outage (Hrs)	Duration of Outage (Min)	MW before Outage (MW)	Tripping Details: Protection Relay Optd	Tripping Details: Fault Details (As recorded by relay)	Type/Cause of Fault	Reason for Shutdown	Remarks
1	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	-	[illegible]
2	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	-	[illegible]
3	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	[illegible]	-	[illegible]
4	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	-	[illegible]

Division	[illegible]
Substation	[illegible]
Month	[illegible]

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Date	Shutdown/Tripping Time	Normalization Time Date	Normalization Time Time	Duration of Outage (Hrs)	Duration of Outage (Min)	MW before Outage (MW)	Tripping Details: Protection Relay Optd	Tripping Details: Fault Details (As recorded by relay)	Type/Cause of Fault	Reason for Shutdown	Remarks
										NO TRIPPING					

Division	[illegible]
Substation	[illegible]
Month	[illegible]

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Date	Shutdown/Tripping Time	Normalization Time Date	Normalization Time Time	Duration of Outage (Hrs)	Duration of Outage (Min)	MW before Outage (MW)	Tripping Details: Protection Relay Optd	Tripping Details: Fault Details (As recorded by relay)	Type/Cause of Fault	Reason for Shutdown	Remarks
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Charged
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Charged
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Charged

1. 400/220/132/33kV Jigmeling Substation													
Sl. No.	Date of Tripping	Time of Outages/ Time of Tripping	Date of Normalization	Time of Fault was Cleared	Duration of Outages (Hrs)	MW before Outage (MW)	Name of feeder	Name of the Substations/lines Affected by the Fault	Reasons of Fault	Relay Operations	Fault Location(KM)	Type of outages	Remarks
ii 66kV Above													
1	26-01-2022	18:39 hrs	26.01.2022	18:43 hrs	0	56.12	132kV Tingtibi	Tingtibi	Main 1: Relay General Trip, 3 phase trip. Line loop B-G	SIPROTEC 7SA52	Distance: 47.8 km	Transient	
2. 220/66/33kV Dhajay Substation													
ii 66kV and above													
1	12.01.2022	05:38:20hrs	12.01.2022	05:51:32hrs		16.96	Jigmeling feed	Dhajay S/s		Main-1-IA=1.76kA, IB=1.59kA, IC=1.57kA, main 2, Ie=9157.01A, Tripped			Feeder restored after as per BPSO instruction.

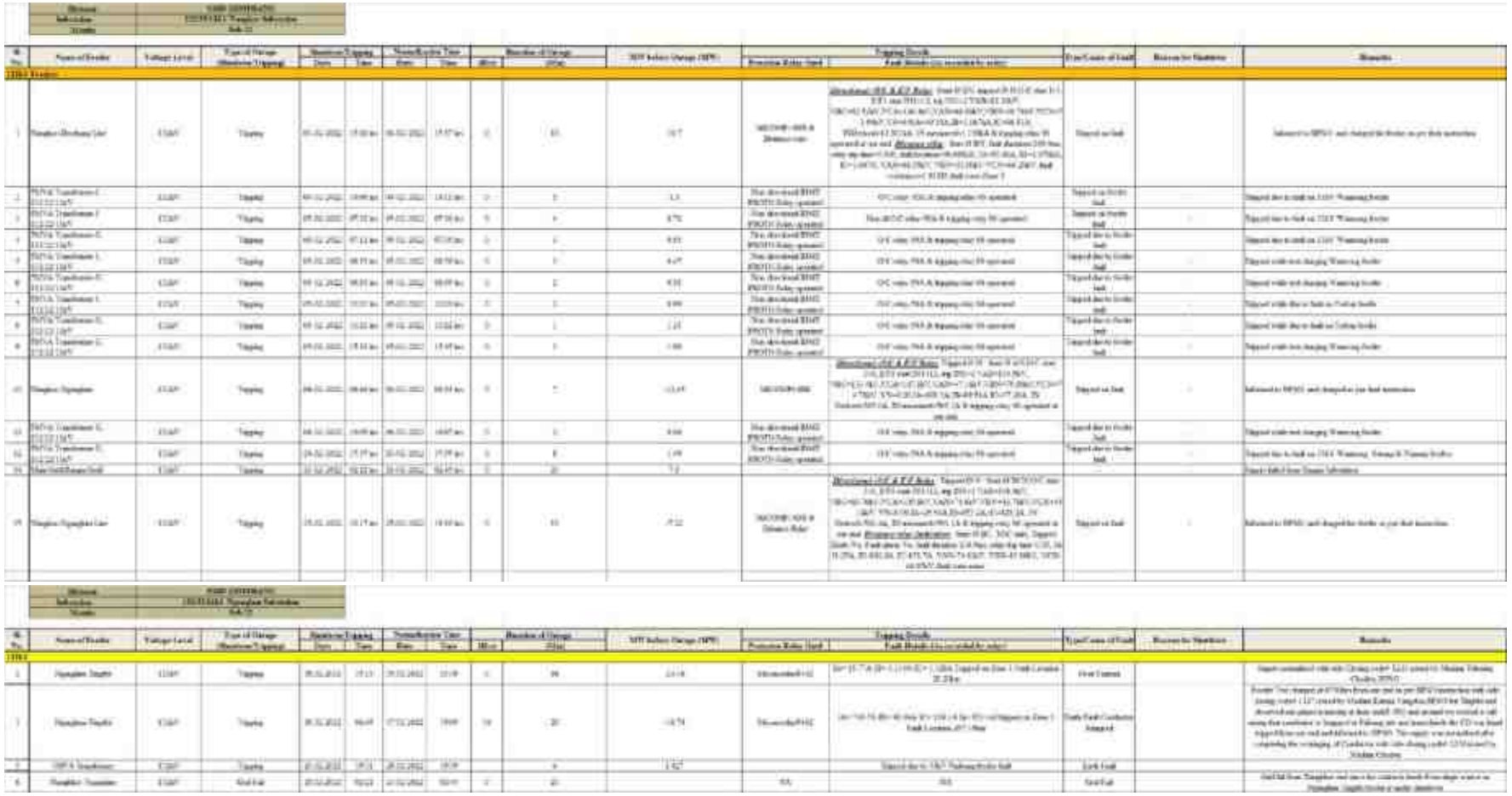
February 2022

Division	[illegible]
Substation	[illegible] Substation
Month	[illegible]

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Time		Normalization Time		Duration of Outage		MW before Outage (MW)	Tripping Details		Type/Cause of Fault	Reason for Shutdown	Remarks
				Date	Time	Date	Time	Hrs	Min		Protection Relay Op'd	Fault Details (as recorded by relay)			
132kV Feeders															
1	[illegible]	132kV	Tripped	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NIL	NIL	Tripped		[illegible]
2	[illegible]	132kV	Tripped	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
3	[illegible]	132kV	Tripped	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	NIL	Shutdown	[illegible]	[illegible]

Division	[illegible]
Substation	[illegible] Substation
Month	[illegible]

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Date	Shutdown/Tripping Time	Normalization Date	Normalization Time	Duration of Outage Hrs	Duration of Outage Min	MW before Outage (MW)	Protection Relay Op'd	Fault Details (as recorded by relay)	Type/Cause of Fault	Reason for Shutdown	Remarks
33kV															
1	5MVA Transformer - I	33kV	Tripped	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	NA	[illegible]	NA	[illegible]
	5MVA Transformer - II	33kV	Tripped	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	NA	[illegible]	NA	[illegible]
2	[illegible]	33kV	Tripped	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	NA	[illegible]	NA	[illegible]
	5MVA Transformer - I	33kV	Tripped	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NA	NA	[illegible]	NA	[illegible]



Division	[illegible]
Substation	[illegible]
Month	[illegible]

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Date	Shutdown/Tripping Time	Normalization Time Date	Normalization Time Time	Duration of Outage (Hrs)	Duration of Outage (Min)	[illegible] (MW)	Tripping Details: Protection Relay Oprd	Tripping Details: Fault Details (as recorded by relay)	Type/Cause of Fault	Reason for Shutdown	Remarks
1	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Division	[illegible]
Substation	[illegible]
Month	[illegible]

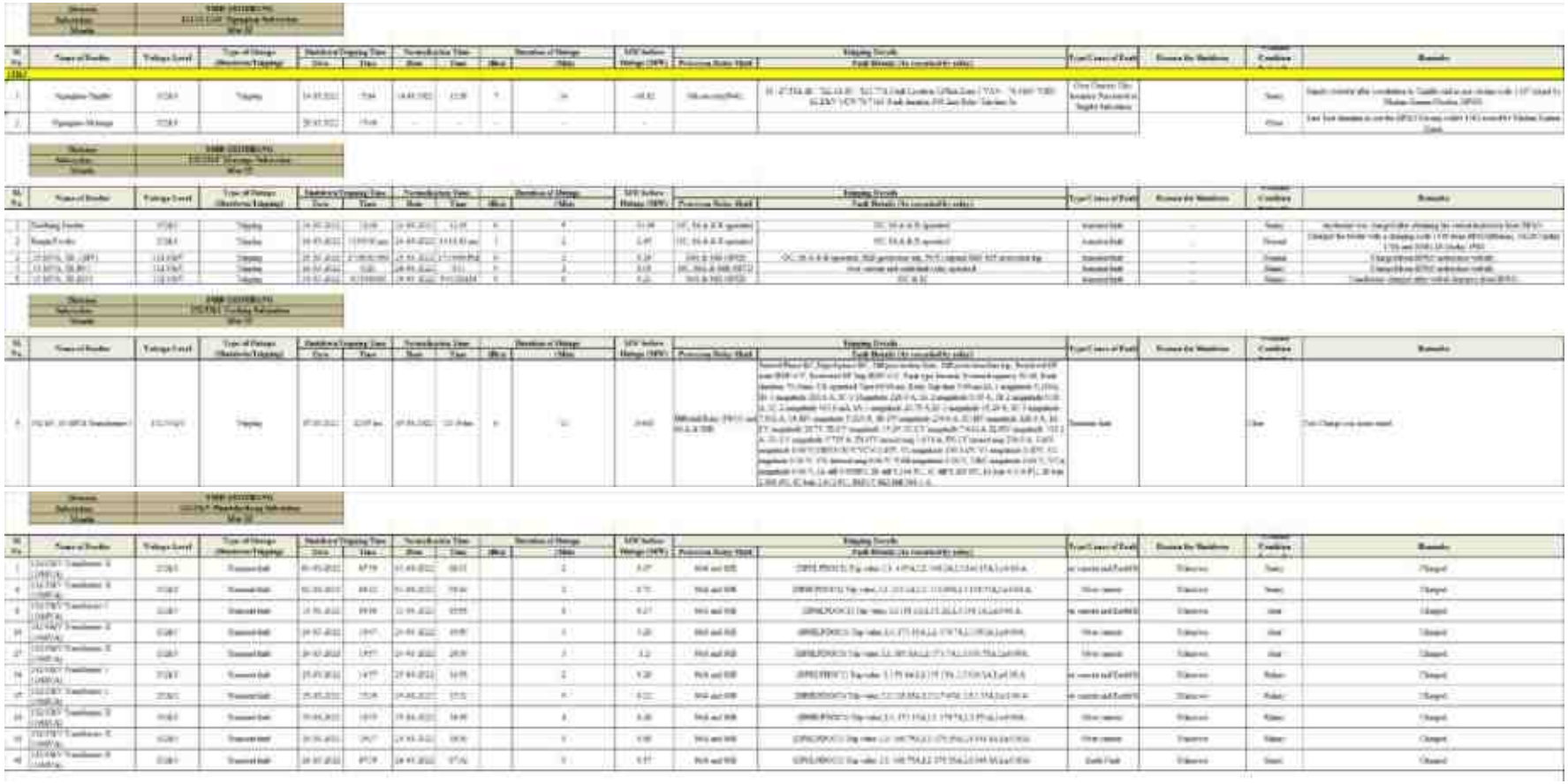
Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Date	Shutdown/Tripping Time	Normalization Time Date	Normalization Time Time	Duration of Outage (Hrs)	Duration of Outage (Min)	[illegible] (MW)	Tripping Details: Protection Relay Oprd	Tripping Details: Fault Details (as recorded by relay)	Type/Cause of Fault	Reason for Shutdown	Remarks
1	[illegible]	[illegible]	Trip on fault	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	Trip on fault	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Division	[illegible]
Substation	[illegible]
Month	[illegible]

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Date	Shutdown/Tripping Time	Normalization Time Date	Normalization Time Time	Duration of Outage (Hrs)	Duration of Outage (Min)	[illegible] (MW)	Tripping Details: Protection Relay Oprd	Tripping Details: Fault Details (as recorded by relay)	Type/Cause of Fault	Reason for Shutdown	Remarks
1	[illegible]	[illegible]	Transient fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	Transient fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Sl No.	Date of Tripping	Time of Outages/ Time of Tripping	Date of Normalization	Time of Fault was Cleared	Duration of Outages (Hrs)	MW before Outage (MW)	Name of feeder	Name of the Substation/ Affected by the Fault	Reasons of Fault	Relay Operations	Fault Location(KM)	Type of outages	Remarks
1. 400/220/132/33kV Jigmeling Substation													
i) 66kV Above													
1	08.02.2022	23:03 hrs	08.02.2022	12:57 hrs	1	28.20	400kV Alipurduar line 1	Alipurduar SS	DTT	75A32 & 75A33			
2	08.02.2022	18:59 hrs				23.8	400kV Alipurduar line 1	Alipurduar SS	DTT	75A32 & 75A33			
3	16.02.2022	20:51 hrs	16.02.2022	21:08 hrs	0	73.43	400kV Alipurduar line 2	Alipurduar SS	DTT	75A31 & 75A33			
4	17.06.2022	17:00 hrs				58.47	400kV Alipurduar line 2	Alipurduar SS	DTT trip on L1??	75A32 & 75A34			
									NO TRIPPING				
4. 132/33kV Tintibi Substation													
i) 66kV & Above													
1	05-02-2022	15:18	05-02-2022	15:52	0	24.77	132kV Tingtibi Nangkhor fdr	132kV Tingtibi-Nangkhor Line	Temporary fault	Distance protection relay Start phase BCN Trip Phase ABC Zone 1 Fault Location 11.42Km	11.02KM	Temporary	
2	06-02-2022	08:04	07-02-2022	19:08	11	10.08	132kV Tingtibi Nangkhor fdr	132kV Tingtibi-Nangkhor Line	Conductor snapped at TN 45&46	Distance protection relay Start phase AN Trip Phase ABC Zone 1 Fault Location 11.19Km	11.19	Line fault	

March 2022



Sl. No.	Date of Tripping	Time of Outages/ Time of Tripping	Date of Normalization	Time of Fault was Cleared	Duration of Outages (Hrs)	MW before Outage (MW)	Name of feeder	Name of the Substation/s Affected by the Fault	Reasons of Fault	Relay Operations	Fault Location(KM)	Type of outages	Remarks
1. 400/220/132/33kV Jigmeling Substation													
i) 66kV Above													
1	08.02.2022	10:15 hrs	08.02.2022	11:17 hrs	1	28.08	400kV Alipurduar line 1	Alipurduar s/s	DTT	78A/U2 & 78A001			
2	08.02.2022	10:58 hrs				225.8	400kV Alipurduar line 2	Alipurduar s/s	DTT	78A/U2 & 78A002			
3	16.02.2022	20:10 hrs	16.02.2022	23:58 hrs	4	15.45	400kV Alipurduar line 2	Alipurduar s/s	DTT	78A/U2 & 78A003			
4	27.06.2022	19:58 hrs				58.47	400kV Alipurduar line 2	Alipurduar s/s	DTT trip on LEE	78A/U2 & 78A004			
4. 132/33kV Tintibi Substation													
i) 66kV & Above													
1	09-02-2022	15:10	09-02-2022	15:52	0	24.77	132kV Tingtibi-Nangkor fdr	132kV Tingtibi-nangkor Line	Temporary fault	Distance protection relay Start phase:BCN,Trip Phase:ABC,Zone-1,Fault Location:31.02Km	31.02KM	Temporary	
2	06-02-2022	18:49	07-02-2022	19:00	0	19.08	132kV Tingtibi-Nangkor fdr	132kV Tingtibi-nangkor Line	Conductor snapped at TN-03&04	Distance protection relay Start phase:AN,Trip Phase:ABC,Zone-1,Fault Location:11.45Km	11.45	Line fault	

April 2022

Division	[illegible]
Substation	[illegible]
Month	[illegible]

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Time		Normalization Time		Duration of Outage	MW before Outage (MW)	Tripping Details		Type/Cause of Fault	Reason for Shutdown	Remarks
				Date	Time	Date	Time	(Hrs)		Protection Relay Optd	Fault Details (As recorded by relay)			
[illegible] Feeders														
1	11kV [illegible]	11kV	Tripped	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]			Tripped	[illegible]	[illegible]
2	11kV [illegible]	11kV	Tripped	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]			Tripped	[illegible]	[illegible]
3	11kV [illegible]	11kV	Tripped	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]			Tripped	[illegible]	[illegible]
4	[illegible]	[illegible]	Tripped	29-04-2022	[illegible]	29-04-2022	[illegible]		[illegible]			Tripped	[illegible]	[illegible]

Division	
Substation	
Month	

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Time: Date	Shutdown/Tripping Time: Time	Restoration Time: Date	Restoration Time: Time	Duration (Hrs)	MW Affected Outage (MW)	Tripping Details: Protection Relay Operated	Tripping Details: Fault Details (As recorded by relay)	Type/Cause of Fault	Reason for Shutdown	Remarks
	132kV													
1	[illegible]	132kV	Tripping											
2	[illegible]	132kV												
3	[illegible]	132kV												
4	[illegible]	132kV	Tripping											
5	[illegible]	132kV	Tripping											
6	[illegible]	132kV												
7	[illegible]	132kV												
8	[illegible]	132kV												
9	[illegible]	132kV												

Division	
Substation	
Month	

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Time: Date	Shutdown/Tripping Time: Time	Restoration Time: Date	Restoration Time: Time	Duration (Hrs)	MW Affected Outage (MW)	Tripping Details: Protection Relay Operated	Tripping Details: Fault Details (As recorded by relay)	Type/Cause of Fault	Reason for Shutdown	Remarks
	132kV Feeders													
1	[illegible]	132kV	Tripping											
2	[illegible]	132kV	Tripping											
3	[illegible]	132kV	Tripping											
4	[illegible]	132kV	Tripping											
5	[illegible]	132kV	Tripping											
6	[illegible]	132kV	Tripping											
7	[illegible]	132kV	Tripping											
8	[illegible]	132kV	Tripping											
9	[illegible]	132kV	Tripping											
10	[illegible]	132kV	Tripping											
11	[illegible]	132kV	Tripping											
12	[illegible]	132kV	Tripping											
13	[illegible]	132kV	Tripping											
14	[illegible]	132kV	Tripping											
15	[illegible]	132kV	Tripping											

36														
37														
38														
39														
40														
41														
42														
43														
44														
45														
46														
47														
48														
49														
50														
51														
52														
53														
54														

Division	
Substation	
Month	

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Time		Normalization Time		Duration (Hrs)	MW before Outage (MW)	Tripping Details		Type/Cause of Fault	Reason for Shutdown	Remarks
				Date	Time	Date	Time			Protection Relay Operated	Fault Details (As recorded by relay)			
1														
2														
3														

Division	
Substation	
Month	

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Time		Normalization Time		Duration (Hrs)	MW before Outage (MW)	Tripping Details		Type/Cause of Fault	Reason for Shutdown	Remarks
				Date	Time	Date	Time			Protection Relay Operated	Fault Details (As recorded by relay)			
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														

Division:	[illegible]
Substation:	[illegible]
Month:	[illegible]

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Hardwire Tripping)	Hardwire Tripping Time: Date	Hardwire Tripping Time: Time	Normalization Time: Date	Normalization Time: Time	Duration (Hrs)	SAIFI before Outage (UPS)	Tripping Details: Protection Relay Operated	Tripping Details: Fault Details (As recorded by relay)	Type/Cause of Fault	Reason for Hardwire	Remarks
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Division:	[illegible]
Substation:	[illegible]
Month:	[illegible]

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Hardwire Tripping)	Hardwire Tripping Time: Date	Hardwire Tripping Time: Time	Normalization Time: Date	Normalization Time: Time	Duration (Hrs)	SAIFI before Outage (UPS)	Tripping Details: Protection Relay Operated	Tripping Details: Fault Details (As recorded by relay)	Type/Cause of Fault	Reason for Hardwire	Remarks
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Element	
Substation	
Month	

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Time: Date	Shutdown/Tripping Time: Time	Normalization Time: Date	Normalization Time: Time	Duration (Hrs)	SAIDI Indices Outage (SAIDI)	Tripping Details: Protection Relay Operated	Tripping Details: Fault Details (As recorded by relay)	Type/Cause of Fault	Reason for Shutdown	Remarks
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18										Nil	Nil	Nil		
19										Nil	Nil	Nil		
20														
21														
22														
23														
24														
25														
26														

1. 400/220/132/33kV Jigmeling Substation													
Sl. No.	Date of Tripping	Time of Outages/ Time of Tripping	Date of Normalization	Time of Fault was Cleared	Duration of Outages (Hrs)	MW before Outage (MW)	Name of feeder	Name of the Substation where Affected by the Fault	Reasons of Fault	Relay Operations	Fault Location(KM)	Type of outages	Remarks
i) 400kV Above													
1	09.04.2022	07:52 hrs	09.04.2022	08:03 hrs	0	171.41 MW	400kV [illegible] circuit 2	Alipurduar Substation	L1 to Ground and Over current... [illegible]	main 1 = Rph pick up		Transient Fault	
2	08.04.2022	00:26 hrs	08.04.2022	02:17 hrs	0	180.11 MW	400kV [illegible] circuit 2	Alipurduar Substation	L1- Ground Zone 1, Over current... [illegible]	Main 1 and Main 1 pick up, Rphase to ground	Fault Distance: Main [illegible]	Transient Fault	
3	10.04.2022	09:38 hrs	10.04.2022	09:51 hrs	0	121.08 MW	400kV [illegible] circuit 1	Alipurduar Substation	Fault Loop(Rph to Ground)	Main 1 optd ,Fault Loop(Rph to Ground) ,Zone 1 optd. , Main 2 optd ,Fault Loop(Rph to Ground) , Zone 1 optd	Main 1 Fault dist(10.7 km), Main 2 Fault dist(10.2)		
4	14.04.2022	19:28 hrs				22.36	400kV [illegible] circuit 1	Alipurduar Substation	Y Bph trip	Main 1 & Main2 optd (YBph trip), zone 1 and Zone2 optd , (YB ph trip)			
5	15.04.2022	02:15 hrs	15.04.2022	0:00	0	93.9	400kV [illegible] circuit 1	Alipurduar Substation	Rph-G	Main 1: General Pickup , Main 2: RYBph pick up and Fault loop R-G	Main 2 Fault dist 126.2 km	[illegible] are following Charging code: NLDC Bhutan: 1003, [illegible]	
6	22.04.2022	20:15 hrs	22.04.2022	0:00	0	116.35	400kV MHEP Line [illegible]	Jigmeling SS and Alipurduar SS	Rph-G , Fault current main 1&2, Fault current 5.8kA	Main 1 optd ,Fault Loop(Rph to Ground) , Zone 1 optd , Main 2 optd ,Fault Loop(Rph to Ground), Zone 1 optd	Fault dist(11.1 km), Fault dist(11.5)		Line auto reclosed
7	27.04.2022	17:11hrs	28.04.2022	18:58 hrs	25	101.39MW	500MVA ICT	Jigmeling SS	R&B phase operated	Differential relay operated			
8	22.04.2022	21:14 hrs	22.04.2022	21:22 hrs	0	37.320	220kV Tsirang	Dhajay SS	L3-G	Main-1, Fault Loop Bph to Ground, Z1 Trip, IF=1.95kA	Fault dist. 10.1km	Transient	Line restored as per BPSO clearing code: 1003, [illegible]
9	30.04.2022	23:14 hrs	[illegible]	23:30 hrs	0	12.81	220kV [illegible]	[illegible]	L1,L3-G	Main 1 optd, Z1 Trip, Fault Loop(L1, L3 and ground)	Fault dist([illegible] km) Fault current: [illegible]	Transient	
10	27.04.2022	17:10hrs	27.04.2022			-80.00	400/220kV ICT	Jigmeling SS					
2. 220/66/33kV Dhajay Substation													
i) 66kV and above													
1	22.04.2022	21:14hrs	22.04.2022	21:22hrs		36.52	Tsirang-Jigmeling	Dhajay Substation	Main 1- Ia=0.13kA, Ib=0.79kA, Ic=1.47kA with distance 19.5KM, Main 2- Ia=160.2A, Ib=434.17A, Ic=1455.55A, In=2012.58A	Distance relay Main 1&2(21 M21,2)	Line segment	Tripped	Feeder restored after confirmation
2	22.04.2022	23:03hrs	22.04.2022	23:07hrs		51.1	Tsirang-Jigmeling	Dhajay Substation	Main 2: Ia=220 [illegible]	Distance relay Main 2(21,2)	Line segment	Tripped	Feeder restored after confirmation

4. 132/33kV Tingtibi Substation

i) 66kV & Above

1	02-04-2022	23:14	02-04-2022	23:28	0	13.130	132kV Tingti	132kV Ti	Temporary Fault	Distance Relay Start Phase:BN,Trip Phase:ABC,Fault zone-1 trip,Fault location:28.30KM	28.30KM	Temporary	
2	09-04-2022	21:19	09-04-2022	21:55	0	12.800	132kV Tingti	132kV Ti	Temporary Fault	Distance Relay Start Phase:ABC,Trip Phase:ABC,Fault zone-1 trip,Fault location:54.28KM	54.28KM	Temporary	
3	09-04-2022	22:38	09-04-2022	22:47	0	3.670	132kV Tingti	132kV Ti	Temporary Fault	Distance Relay Start Phase:AN,Trip Phase:ABC,Fault zone-1 trip,Fault location:10.75KM	10.75KM	Temporary	
4	09-04-2022	23:00	09-04-2022	23:07	0	9.720	132kV Tingti	132kV Ti	Temporary Fault	Distance Relay Start Phase:ABCN,Trip Phase:ABC,Fault zone-1 trip,Fault location:12.93KM	12.93KM	Temporary	
5	10-04-2022	17:14	11-04-2022	17:17	0	12.890	132kV Tingti	132kV Ti	Temporary Fault	Distance Relay Start Phase:BN,Trip Phase:ABC,Fault zone-1 trip,Fault location:11.73KM	11.73KM	Temporary	
6	15-04-2022	03:54	15-04-2022	04:05	0	1.230	132kV Tingti	132kV Ti	Temporary Fault	Distance Relay Start Phase:CN,Trip Phase:ABC,Fault zone-1 trip,Fault location:51.03KM	51.03KM	Temporary	
7	18-04-2022	01:55	18-04-2022	02:10	0	4.890	132kV Tingti	132kV Ti	Temporary Fault	Distance Relay Start Phase:AB,Trip Phase:ABC,Fault zone-1 trip,Fault location:15.33KM	15.33KM	Temporary	
8	18-04-2022	02:10	20-04-2022	19:55	87	6.900	132kV Tingti	132kV Ti	Conductor Snapped	Distance Relay Start Phase:CN,Trip Phase:ABC,Fault zone-1 trip,Fault location:28.08KM	28.08KM	Temporary	Conductor Snapped/Broken
9	22-04-2022	22:03	22-04-2022	22:13	0	56.330	132kV Tingti	132kV Ti	Temporary Fault	Distance Relay Start Phase:BCN,Trip Phase:ABC,Fault zone-1 trip,Fault location:31.82KM	31.82KM	Temporary	
10	22-04-2022	22:23	22-04-2022	22:29	0	28.140	132kV Tingti	132kV Ti	Temporary Fault	Distance Relay Start Phase:AN,Trip Phase:ABC,Fault zone-1 trip,Fault location:54.02KM	54.02KM	Temporary	
11	23-04-2022	00:08	23-04-2022	00:20	0	0.474	132kV Tingti	132kV Ti	Temporary Fault	Distance Relay Start Phase:BCN,Trip Phase:ABC,Fault zone-1 trip,Fault location:48.3KM	48.3KM	Temporary	
12	25-04-2022	00:21	25-04-2022	00:39	0	0.720	132kV Tingti	132kV Ti	Temporary Fault	Distance Relay Start: [illegible], Trip [illegible] Fault zone: None. Over voltage tripped	0	Temporary	
13	25-04-2022	00:23	25-04-2022	00:41	0	0.110	5MVA transf	5MVA tr	Over current	Over current (27/18)	0	Temporary	
14	25-04-2022	00:23	25-04-2022	00:42	0	0.240	5MVA transf	5MVA tr	Over current	Over current (27/18)	0	Temporary	
15	27-04-2022	17:13 hrs	27-04-2022	17:29	0	10.800	132kV Tingti	132kV Ti	Temporary Fault	Distance Relay Start Phase:ACN,Trip Phase:ABC,Fault zone-1 trip,Fault location:40.37KM	40.37KM	Temporary	

5. 132/33kV Yurmoo Substation

i) 66kV & Above

1	22.04.2022	0.959444444	22.04.2022	0.932291667	0	-18.7	132kV Tingti	132kV Yurmoo Ss		Nil	Tingtibi ss		Supply was failed from Tingtibi ss
2	23.04.2022	[illegible]	23.04.2022	[illegible]	0	11.8	132kV Tingti	132kV Yurmoo Ss		Nil	Tingtibi ss		Supply was failed from Tingtibi ss
3	25.04.2022	[illegible]	25.04.2022	[illegible]	0	-11.4	132kV Tingti	132kV Yurmoo Ss		Nil	Tingtibi ss		Supply was failed from Tingtibi ss

6. 220/33kV Dagapela Substation

i) 66kV & Above

1	15.03.2022	06:15hrs	15.03.2022	19:00hrs	13	0.27	220/33kV 10	Dagapela	Earth fault	Uhp Relay operated trip, MIT acted	Dagapela Substation	Transient Fault	Cable termination got burned and

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Division	[illegible]
Substation	[illegible] Substation
Month	[illegible]

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Time: Date	Shutdown/Tripping Time: Time	Normalization Time: Date	Normalization Time: Time	Duration (Hrs)	MW before Outage (MW)	Tripping Details: Protection Relay (Start)	Tripping Details: Fault Details (As recorded by relays)	Type/Cause of Fault	Reason for Shutdown	Remarks
[illegible]														
1	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	Micom relay P442	[illegible]	Overcurrent		Supply restored after coordination with [illegible]
2	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	Micom relay [illegible]	[illegible]	Earth Fault		Supply restored after coordination with [illegible]
3	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	Micom relay [illegible]	[illegible]	Overcurrent		Supply restored after coordination with [illegible]
4	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	Micom relay [illegible]	[illegible]	Earth Fault		Supply restored after coordination with [illegible]
5	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	OC & EF Relay	[illegible]	OC & EF		[illegible]
6	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	Micom relay P442	[illegible]	NA		
7	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	Micom relay [illegible]	[illegible]	Earth Fault		Supply restored after coordination with [illegible]
8	[illegible]	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	Under Voltage		[illegible]

Division	[illegible]
Substation	[illegible] Substation
Month	[illegible]

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Time: Date	Shutdown/Tripping Time: Time	Normalization Time: Date	Normalization Time: Time	Duration (Hrs)	MW before Outage (MW)	Tripping Details: Protection Relay (Start)	Tripping Details: Fault Details (As recorded by relays)	Type/Cause of Fault	Reason for Shutdown	Remarks
1	[illegible] Feeder	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	transient fault	...	[illegible]
2	[illegible] Feeder	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	transient fault	...	[illegible]
3	[illegible] Feeder	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	transient fault	...	[illegible]
4	[illegible] Feeder	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	transient fault	...	[illegible]
5	[illegible] Feeder	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	transient fault	...	[illegible]
6	[illegible] Feeder	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	transient fault	...	[illegible]
7	[illegible] Feeder	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	...	...	[illegible]

Division	[illegible]
Substation	[illegible] Substation
Month	[illegible]

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Time: Date	Shutdown/Tripping Time: Time	Normalization Time: Date	Normalization Time: Time	Duration (Hrs)	MW before Outage (MW)	Tripping Details: Protection Relay (Start)	Tripping Details: Fault Details (As recorded by relays)	Type/Cause of Fault	Reason for Shutdown	Remarks
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	Nil	Nil	[illegible]		[illegible]

Division	[illegible]
Substation	[illegible]
Month	[illegible]

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Date	Shutdown/Tripping Time	Normalization Date	Normalization Time	Duration (Hrs)	MW before Outage (MW)	Protection Relay Operated	Fault Details (as recorded by relays)	Type/Cause of Fault	Reason for Shutdown	Remarks
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Over current	Unknown	Charged
[illegible]	[illegible]	[illegible]	Transient fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Earth fault	Unknown	Charged
[illegible]	[illegible]	[illegible]	Transient fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Over current	Unknown	Charged
[illegible]	[illegible]	[illegible]	Trip on fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Over current	Unknown	Charged
[illegible]	[illegible]	[illegible]	Trip on fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Over current	Unknown	Charged
[illegible]	[illegible]	[illegible]	Transient fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Over current	Unknown	Charged
[illegible]	[illegible]	[illegible]	Trip on fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Over current	Unknown	Charged
[illegible]	[illegible]	[illegible]	Transient fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Earth fault	Unknown	[illegible]
[illegible]	[illegible]	[illegible]	Transient fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	Unknown	Charged
[illegible]	[illegible]	[illegible]	Transient fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Earth fault	Unknown	Charged
[illegible]	[illegible]	[illegible]	Transient fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	Unknown	Charged
[illegible]	[illegible]	[illegible]	Transient fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Earth fault	Unknown	Charged
[illegible]	[illegible]	[illegible]	Transient fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	Unknown	Charged
[illegible]	[illegible]	[illegible]	Transient fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Earth fault	Unknown	Charged
[illegible]	[illegible]	[illegible]	Transient fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	Unknown	[illegible]
[illegible]	[illegible]	[illegible]	Transient fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Over current	Unknown	Charged
[illegible]	[illegible]	[illegible]	Transient fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Earth fault	Unknown	Charged
[illegible]	[illegible]	[illegible]	Transient fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Earth fault	Unknown	Charged
[illegible]	[illegible]	[illegible]	Transient fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Earth fault	Unknown	Charged
[illegible]	[illegible]	[illegible]	Transient fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	Unknown	Charged

Sl. No.	Date of Tripping	Time of Outage/ Time of Tripping	Date of Normalization	Time of Fault was Cleared	Duration of Outage (Hrs)	MW before Outage (MW)	Name of feeder	Name of the Substation/lines Affected by the Fault	Reasons of Fault	Relay Operations	Fault Location(KM)	Type of outages	Remarks
3. 400/220/132/33kV Jigmeling Substation													
i) 66kV Above													
1	20.01.2022	22:48 hrs	20.01.2022	23:03 hrs	0	82.17	400/220kV ICT	Jigmeling Substation		Directional O/C & E/F Protection Relay optd. (TPY)			
2	21.01.2022	10:41 hrs	21.01.2022	10:56 hrs	0	82.7	400/220kV ICT	Jigmeling Substation	Operated PRV both on HV and LV	Directional O/C & E/F trip			
3	28-May-22	10:27 hrs	28-May-22	11:45 hrs	1	-117.81	400kV Lhamoizingkha Line-4	Jigmeling and Alipurduar SS	DTT trip for RYB phase	Distance Relay: SIPROTECT 7SA52 & 7SA611			
4	28-May-22	11:50 hrs	28-May-22	14:28 hrs	2		400kV Lhamoizingkha Line-4	Jigmeling and Alipurduar SS	DTT trip for RYB phase	Distance Relay: SIPROTECT 7SA52 & 7SA611			
5	29-May-22	17:24 hrs	29-May-22	18:28 hrs	1	-113.21	400kV Lhamoizingkha Line-4	Jigmeling and Alipurduar SS	DTT trip for RYB phase	Distance Relay: SIPROTECT 7SA52 & 7SA611			
1	11.07.2022	20:03hrs	11.07.2022	20:20hrs	0	44.27	220kV Tsirang feeder	Tsirang SS	Ground fault	Main - 1 TAD TRIP, Z1 D2R tripped, Main - 2 TAR TRIP, Z1 D2R tripped	Fault Current: Ryb=3.13kA, Yph=4.98kA, Bph=4.93kA Main 1 fault dist=11.8km; Main 2 Fault Dist=11.87km		lightning &Raining
4. 132/33kV Tingtibi Substation													
i) 66kV & Above													
1	07-05-2022	16:29	07-05-2022	16:34	0	28.370	132kV Tingtibi	132kV Yurmoo Temporary Fault		Distance Relay Start Phase:ACN, Trip Phase:ABC, Fault zone 1 trip Fault location:9.09kM	9.09kM	Temporary	Closing Code 11(Manual)
2	15-05-2022	20:09	15-05-2022	20:15	0	28.670	132kV Tingtibi	132kV Yurmoo Temporary Fault		Distance Relay Start Phase:ABC, Trip Phase:ABC, Fault zone 1 trip Fault location:59kM	59kM	Temporary	
3	18-05-2022	21:47	18-05-2022	21:50	0	27.720	132kV Tingtibi	132kV Yurmoo Temporary Fault		Distance Relay Start Phase:ACN, Trip Phase:ABC, Fault zone 1 trip Fault location:54.58kM	54.58kM	Temporary	
5. 132/33kV Yurmoo Substation													
i) 66kV & Above													
1	22.04.2022	0.915444444	22.04.2022	0.922916667	0	-10.7	132kV Tingtibi	132kV Yurmoo Ss	Nil	Tingtibi ss			Supply was failed from Tingtibi ss
2	23.04.2022	0.009027778	23.04.2022	0.01[illegible]	0	-11.8	132kV Tingtibi	132kV Yurmoo Ss	Nil	Tingtibi ss			Supply was failed from Tingtibi ss
3	25.04.2022	0.349305556	25.04.2022	0.357638889	0	-11.4	132kV Tingtibi	132kV Yurmoo Ss	Nil	Tingtibi ss			Supply was failed from Tingtibi ss

June 2022

Division:	[illegible]
Substation:	132/33 kV [illegible] Substation
Month:	[illegible]

Sl. No	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Time Date	Time	Normalization Time Date	Time	Duration (Hrs)	MW before Outage (MW)	Protection Relay (Spd)	Fault Details (As recorded by relay)	Type/Cause of Fault	Reason for Shutdown	Remarks
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Division:	[illegible]
Substation:	[illegible] Substation
Month:	[illegible]

Sl. No	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Time Date	Time	Normalization Time Date	Time	Duration (Hrs)	MW before Outage (MW)	Protection Relay (Spd)	Fault Details (As recorded by relay)	Type/Cause of Fault	Reason for Shutdown	Remarks
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]

Division:	[illegible]
Substation:	132/33kV [illegible] Substation
Month:	[illegible]

Sl. No	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Time Date	Time	Normalization Time Date	Time	Duration (Hrs)	MW before Outage (MW)	Protection Relay (Spd)	Fault Details (As recorded by relay)	Type/Cause of Fault	Reason for Shutdown	Remarks
1	Nganglam Feeder	132kV	Tripping	#######	15:21	#######	15:38	0	25.41	OC, EF A & E operated	OC, 86 A & B operated.	transient fault	-	The feeder was charged after obtaining the verbal instruction from BPSO.
3	15 MVA Transformer	132/33kV	Tripping	#######	14:17:00 pm	#######	14:48	0	2.45	OC, e/f and 86 A operated	OC, earthfault and 86 B operated.	transient fault	-	-
4	15 MVA Transformer	132/33kV	Tripping	#######	14:17:00 pm	#######	14:35	0	1.92	o/c, ef, 86A and REF protection operated	o/c, ef, 86A and REF protection operated.	transient fault	-	-
7	15 MVA Transformer	132/33kV	Tripping	#######	5:53	#######	6:20	0	3.17	OC, e/f and 86 A operated	OC & earth fault relay operated.	-	-	-
8	15 MVA Transformer(LT)	33kV	Tripping	#######	5:53	#######	6:21	0	3.17	OC, e/f relay operated	over current and earth fault relay operated.	transient fault	-	
10	Rangia Feeder	132kV	Tripping	#######	5:07	#######	6:32	0	82.13	over current, earth fault & 86A operated	over current, earth fault & 86A operated.	transient fault	-	Rangia feeder was charged with a clearing code [illegible]
11	Nganglam Feeder	132kV	Tripping	#######	2:24	#######	2:48	0	30.1	over current, earth fault & 86A,B operated	overcurrent, earth fault and 86A&B operated.	transient fault	-	charged the feeder with BPSO verbal instruction.
12	Rangia Feeder	132kV	Tripping	#######	5:03	#######	5:46	0	57.3	over current, earth fault & 86A,B operated	overcurrent, earth fault and 86A&B operated.	-	-	[illegible]
13	Nganglam feeder	132kV	Tripping	#######	5:03	#######	6:11	1	[illegible]	over current, earth fault & 86A,B operated	overcurrent, earth fault and 86A&B operated.	-	-	[illegible]
14	Nganglam Feeder	132kV	Tripping	#######	19:24	#######	16:18	21	[illegible]	over current, earth fault & 86A,B operated	Dist. Z trip, R,Y & B Phase trip	-	-	[illegible]

[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Time		Normalization Time		Duration	MW before Outage (MW)	Tripping Details		Type/Cause of Fault	Reason for Shutdown	Remarks
				Date	Time	Date	Time	(Hrs)		Protection Relay (Sph)	Fault Details (As recorded by relay)			
[illegible]	[illegible]	[illegible]	Transient fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Earth fault	Unknown	Charged
[illegible]	[illegible]	[illegible]	Transient fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Earth fault	Unknown	Charged
[illegible]	[illegible]	[illegible]	Trip on Fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Over current	Unknown	Charged
[illegible]	[illegible]	[illegible]	Transient fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Earth fault	Unknown	Charged
[illegible]	[illegible]	[illegible]	Transient fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Earth fault	Unknown	Charged
[illegible]	[illegible]	[illegible]	Transient fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Over current	Unknown	Charged
[illegible]	[illegible]	[illegible]	Trip on Fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Earth fault	Unknown	Charged
[illegible]	[illegible]	[illegible]	Transient fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Over current	Unknown	Charged
[illegible]	[illegible]	[illegible]	Transient fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Earth fault	Unknown	Charged
[illegible]	[illegible]	[illegible]	Trip on Fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Over current	Unknown	Charged
[illegible]	[illegible]	[illegible]	Trip on Fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Earth fault	Unknown	Charged after [illegible]
[illegible]	[illegible]	[illegible]	Trip on Fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Over current	Unknown	Charged
[illegible]	[illegible]	[illegible]	Trip on Fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Over current	Unknown	Charged
[illegible]	[illegible]	[illegible]	Trip on Fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Over current	Unknown	Charged
[illegible]	[illegible]	[illegible]	Trip on Fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Over current	Unknown	Charged after [illegible]
[illegible]	[illegible]	[illegible]	Trip on Fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Earth fault and Over current	Unknown	Charged
[illegible]	[illegible]	[illegible]	Trip on Fault	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	Overcurrent	Unknown	Charged

1. 400/220/132/33kV Jigmeling Substation												
Sl. No.	Date of Tripping	Time of Outages/ Time of Tripping	Date of Normalization	Time of Fault was Cleared	Duration of Outages (Hrs)	MW before Outage (MW)	Name of feeder	Name of the Substation/Stations Affected by the Fault	Reasons of Fault	Relay Operations	Type of outages	Remarks
i) 66kV Above												
1	02.06.2022	14:47 hrs	02.06.2022	15:00 hrs	0	171.40	400kV MHEP Line-4	Alipurduar Substation	3ph-G Fault	Z1 pickup, (AR cond. ON)	Transient	
2	02.06.2022	13:28 hrs	02.06.2022	13:39 hrs	0	331.6	400kV MHEP Line-4	Alipurduar Substation	L1-E Loop	R,B/B Phase Trip, Z1 pick up, (AR Cond. ON)	Transient	
3	23.06.2022	15:01 hrs	23.06.2022	15:01 hrs	0	-289.41	400kV MHEP Line-3	Alipurduar Substation	L3-E Loop	Main-1: Bph pick up, Main-2: Bph pick up, Ground pickup and Z1 optd.	Transient	Line auto reclosed
4	30.06.2022	12:17 hrs	01.06.2022	13:01 hrs	0	6.370	220kV Tsirang	Tsirang Substation	Bph to Ground	Main 1 Bph Trip and Z1 trip. Main 2 Bph Trip and Z1		
5	01.06.2022	12:57 hrs	01.06.2022	13:06 hrs	0	21.580	220kV Dagapela	Dagapela Substation	Bph to Ground	Main 1: Yph trip, Bph Trip and Z1 trip. Main 2 Bph Trip and Z1 trip.		
6	02.06.2022	14:28 hrs	02.06.2022	14:42 hrs	0	29.010	220/132kV 80MVA ICT-2	Jigmeling Substation		SEF optd.		
7	31.06.2022	08:48 hrs	31.06.2022	09:02 hrs	0	50.340	220kV Dagapela	Dagapela Substation	Line Fault	Main 1: R & Y phase trip, Z1 trip (DO), Main 2: R & Y phase trip, Z1 trip	Transient	
8	02.06.2022	14:27 hrs	02.06.2022	14:32 hrs	0	23	132kV Gelephu	Gelephu Substation	RY phase trip.	RY phase trip, zone 1 zone 2 optd.	Transient	
9	02.06.2022	14:27 hrs	02.06.2022	14:29 hrs	0	38.8	132kV Tingtibi	Tingtibi Substation	RY Bph and Ground Loop	RYB-E loop, Z1 pick up, Z1 optd.	Transient	
10	23.06.2022	15:53 hrs	23.06.2022	16:19 hrs	0	34.64	132kV Tingtibi	Tingtibi Substation	RY Bph and Ground Loop	Main 1: Relay General Trip and R,Y and B phase trip, Z1-Z1B trip		

3. 132/66/33/11kV Gelephu Substation												
i) 66kV and above												
1	02.06.2022	14.28hrs	02.06.2022	15.10hrs	0	14.4	132kV Sal-Gel	Nos	Heavy lightning	tripped.R0 earth relay oper	Tepmorary	Charging Code: NLDC BTN=1365, NLDC IND=139 & NERLDC=2904. At the same time 132kv Gel-Jig line also tripped from Jigmeling end.
2	21.06.2022	15.25hrs	21.06.2022	16.05hrs	0	18	132kV Gel-Jig	Nos	Emergency shutdown taken by TMD Gelephu	sea	Tepmorary	TMD manager was called by Gelephu Thromde official as they were facing induction problem while stringing CCTV camera fiber line below crossing our 132kV grid line.BPSO opening Code: 9811 & closing code : 1609.
4. 132/33kV Tintibi Substation												
i) 66kV & Above												
1	18.06.2022	18:03	18.06.2022	18:08	0	16.78	Tingtibi-Nang	tingtibi-Na	Temporary Fault	Distance Relay:Start Phase:AB.Trip Phase:ABC.Fault zone-1 trip.Fault location:58.60kM.	Temporary Fault	
2	25.06.2022	15:51	25.06.2022	18:19	0	16.70	Tingtibi-Nang	tingtibi-Na	Temporary Fault	Distance Relay:Start Phase:ABCN.Trip Phase:ABC.Fault zone-1 trip.Fault location:19.75kM.	Temporary Fault	

July 2022

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Division:	
Substation:	
Month:	

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Sustained/Tripping)	Shutdown/Tripping Time		Normalization Time		Duration of Outage		SPC Indices-Outage (MWh)	Tripping Details		Type/Cause of Fault	Reason for Shutdown	Remarks
				Date	Time	Date	Time	(Hrs)	(Min)		Protection Relay Signal	Fault Details (As recorded by relay)			
1															
2															
3															
4															
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6															
7															
8															
9															
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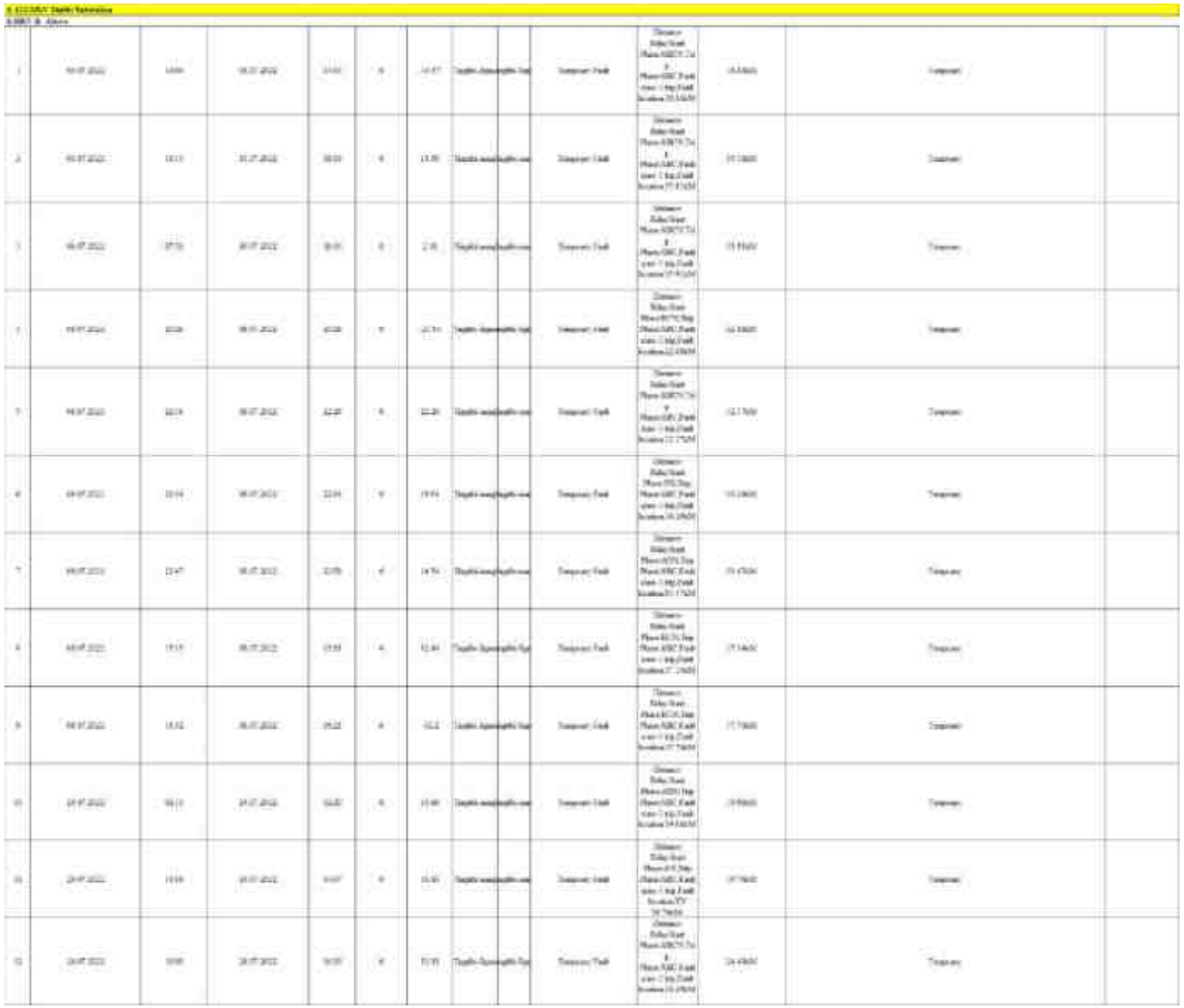
1. 400/220/132/33kV Jigmeling Substation

Sl. No.	Date of Tripping	Time of Outages/ Time of Tripping	Date of Normalization	Time of Fault was Cleared	Duration of Outages (Hrs)	MW before Outage (MW)	Name of feeder	Name of the Substation on Spot Affected by the Fault	Reasons of Fault	Relay Operations	Fault Location(KM)	Type of outages	Remarks
i) 220kV [illegible]													
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	400/220 kV ICT	Jigmeling Substation		[illegible]			
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	220kV ICT-1	Jigmeling Substation		[illegible]	Main 1 Fault current [illegible] Main 2 Fault distance [illegible]		
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	220kV Dagapela Feeder	Dagapela Substation	Earth fault([illegible] to Ground)	[illegible]	Main 1 & 2 Fault Current [illegible] Fault distance [illegible]		
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	220kV Tsirang Feeder	Jigmeling Substation	Earth fault([illegible] Ground)	[illegible]	Main 1 & 2 Current [illegible] Fault distance [illegible]		
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	220kV Dagapela Feeder	Dagapela Substation	Earth fault([illegible] Ground)	[illegible]	Main 1 & 2 Current [illegible] Fault distance [illegible]		
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	220kV Tsirang Feeder	Jigmeling Substation	Earth fault([illegible] phase to Ground)	[illegible]	Main 1 Fault distance [illegible] Main 2 Fault distance [illegible]		
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		220kV Dagapela Feeder	Dagapela Substation	Earth fault([illegible] phase to Ground)	[illegible]	Main 1 Fault distance [illegible] Main 2 Fault distance [illegible]		
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	220kV Tsirang Feeder	Jigmeling Substation	[illegible] phase to ground loop	[illegible]	Fault [illegible]		
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	220kV Dagapela Feeder	Dagapela Substation	[illegible] phase to ground loop	[illegible]	Fault [illegible]		
10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		220kV Bus Coupler	Jigmeling Substation	Over Current	[illegible]			
11	[illegible]	[illegible]	[illegible]	[illegible]			220kV Bus Coupler	Jigmeling Substation	Over Current	[illegible]			
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	132kV Tingtibi Feeder	Tingtibi Substation	[illegible] phase trip	[illegible]	Fault Current [illegible]	Transient	
13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	132kV ICT-1	Jigmeling Substation		[illegible]		Transient	
14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	132kV Tingtibi Feeder	Tingtibi Substation	Earth fault ([illegible])	[illegible]	Main 1 Current [illegible] Fault distance [illegible]	Transient	
15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	132kV Gelephu Feeder	Gelephu Substation	Earth fault ([illegible])	[illegible]	Fault distance [illegible]	Transient	
16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	132kV Tingtibi Feeder	132kV Tingtibi Feeder	Earth fault ([illegible])	[illegible]	Fault distance [illegible]	Transient	
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	132kV Gelephu Feeder	Gelephu Substation	Earth fault ([illegible])	[illegible]	Fault distance [illegible]	Transient	

2. 220/66/33kV Dhajay Substation													
i) 66kV and above													
1	08.07.2022	13:48hrs	08.07.2022	13:50hrs	0	20.82	Tsirang-Jigmeling	Dhajay Substation	Main 1: Ia=1.99kA, Ib=0.01kA, Ic=1.87kA with distance 10.36KM. Main 2: Ia=1745.84A, Ib=[illegible], Ic=1871.28A, with distance 10.38KM	Distance relay Main 1&2(21.1& 21.2)	Line segment	Tripped	Feeder restored after BPSO instruction.
2	08.07.2022	2:18:03hrs	08.07.2022	2:52:30hrs	0	20.82	Tsirang-Jigmeling	Dhajay Substation	Main 1: Ia=2.03kA, Ib=1.25kA, Ic=2.30kA with distance 13kM. Main 2: Ia=2045.55A, Ib=1029.94A, Ic=2081.24A, with distance 17KM	Distance relay Main 1&2(21.1& 21.2)	Line segment	Tripped	Feeder restored after BPSO instruction.
3	20.07.2022	19:52hrs	20.07.2022	20:00hrs	0	61.59	Tsirang-Jigmeling	Dhajay Substation	Main 1: Ia=2.24kA, Ib=0.01kA, Ic=0.01kA with distance 17.31kM. Main 2: Ia=2091.14A, Ib=177.28, Ic=1681.98A, In=[illegible] 12A with distance 71KM	Distance relay Main 1&2(21.1& 21.2)	Line segment	Tripped	Feeder restored after BPSO instruction.
3. 132/66/33/11kV Gelephu Substation													
i) 66kV and above													
1	18.07.2022	21:29hrs	18.07.2022	21:34hrs	1	24	132kv Sal-Gel	Gelephu ss	heavy lightening	o/c on ABC - phase IA=160.5A,IB=1.549KA,IC=1.41 5KA		Temporary	Charging Code; NLDC BTN=1008, NLDC IND=410 & NERLDC=4125 At the same time 132kv Gel-Jig line also tripped from Jigmeling end weather was heavy raining thunder & lightning
2	24.07.2022	16:00hrs	24.07.2022	16:59hrs		59	132kv Sal-Gel	Gelephu ss	heavy lightening	o/c on ABC - phase IA=1.510KA,IB=1.760KA,IC=1.711KA		Temporary	Charging Code; NLDC BTN=1010, NLDC IND=4275 & NERLDC=4611 At the same time 132kv Gel-Jig line also tripped from Jigmeling end & charged back at 16:55hrs.
3	24.07.2022	17:12hrs	24.07.2022	19:28hrs	2	62	132kv Gel-Jel	Nan	Isolator clamp burnt	Shut down taken by	Gelephu ss	Temporary	Due to burnt (sparks) on B phase line isolator Opening code NLDC BTN=1092 & Closing code NLDC BTN=1010 Substation was normal as the customers were not affected during that emergency shutdown
4	24.07.2022	19:40hrs	24.07.2022	20:50hrs	1	32	132kv Gel-Jel	Nan	Isolator clamp burnt	Shut down taken by	Gelephu ss	Temporary	Due to burnt (sparks) on Y phase line isolator Opening code NLDC BTN=1094 & Closing code NLDC BTN=1015 customer was not affected as [illegible]



6. 220/33kV Dagapela Substation													
i) 66kV & Above													
1	07.07.2022	09.15hrs	7.07.2022	09.25hrs	0	14.59	220kV Jigmeling	Dagapela Substation	Earth fault	Master trip relay opt'd	Zone 1 at the distance of 7.2 km(Y&B phase)	Grid fail	Tripped from Jigmeling end due to [illegible]
2	8.07.2022	17.08hrs	8.07.2022	20.42hrs	2	32.13	220kV Jigmeling	Dagapela Substation	L1 L3 phase to ground(Earth fault)	Master trip relay opt'd		Grid fail	Tripped from Jigmeling end due to [illegible]
3	9.07.2022	02.22hrs	9.07.2022	02.34hrs	0	36.42	220kV Jigmeling	Dagapela Substation	R&Y phase	Master trip relay opt'd	zone	Grid fail	Tripped from Jigmeling end due to [illegible]
4	20.07.2022	19.53hrs	20.07.2022	20.04hrs	0	13.89	220kV Jigmeling	Dagapela Substation	R&B to ground	Master trip relay opt'd	distance at [illegible] km	Grid fail	Tripped from Jigmeling end due to [illegible]

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[illegible]																
132kV																
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

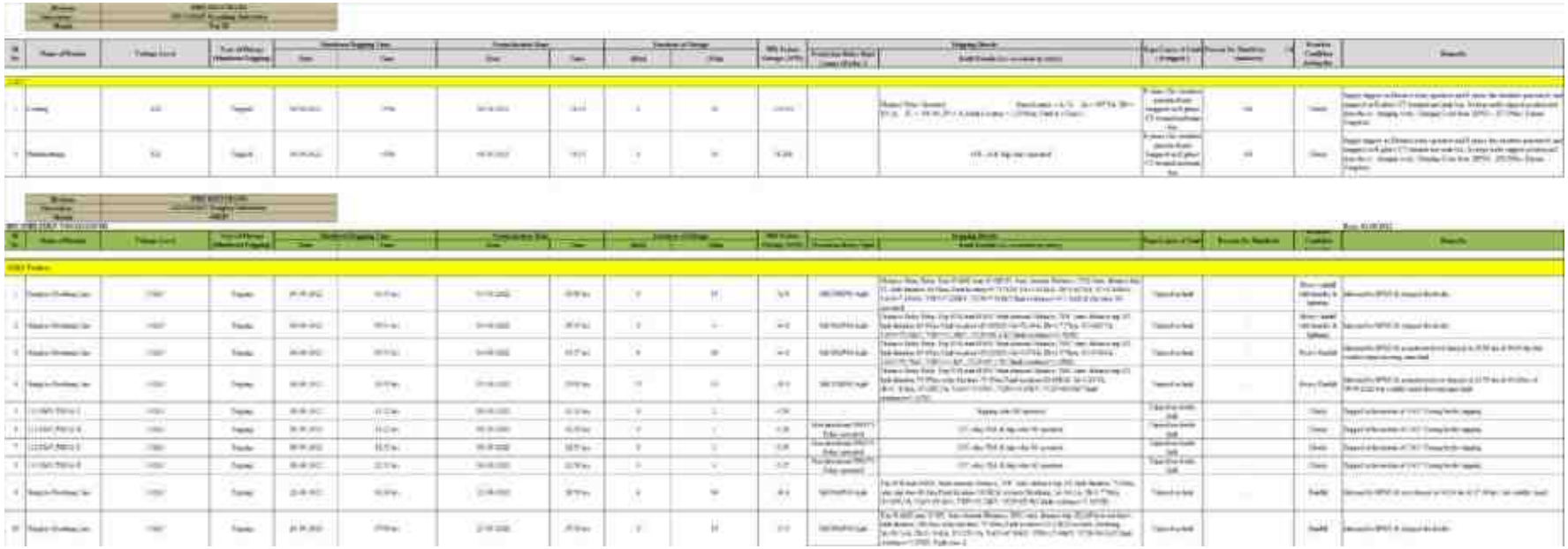
[illegible]																
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]																
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Division	[illegible]
Substation	[illegible]
Month	[illegible]

Sl.No	Substation Name (Select from list)	Feeder Name (Select from list)	Outage Reason (Select from list)	Fault Location (Select from list)	Tripping Date & Time (dd/mm/yyyy hh:mm)	Normalization Date & Time (dd/mm/yyyy hh:mm)	Customers affected (Yes/No)?	Remarks	Outage Duration (hh:mm:ss)	Outage in Minute(s)	No. of Customers Interrupted (Nr)
[illegible]	[illegible]	[illegible]	Fault	Transmission Line	[illegible]	[illegible]	Yes	[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	Fault	Transmission Line	[illegible]	[illegible]	Yes	[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	Fault	Transmission Line	[illegible]	[illegible]	No	[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	Fault	Transmission Line	[illegible]	[illegible]	No	[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	Fault	Substation	[illegible]	[illegible]	Yes	[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	Fault	Distribution Line	[illegible]	[illegible]	Yes	[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	Fault	Substation	[illegible]	[illegible]	Yes	[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	Fault	Substation	[illegible]	[illegible]	Yes	[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	Fault	Distribution Line	[illegible]	[illegible]	Yes	[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	Fault	Distribution Line	[illegible]	[illegible]	Yes	[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	Fault	Distribution Line	[illegible]	[illegible]	Yes	[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	Fault	Distribution Line	[illegible]	[illegible]	Yes	[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	Shutdown	Distribution Line	[illegible]	[illegible]	No	[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	Shutdown	Transmission Line	[illegible]	[illegible]	No	[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	Shutdown	Transmission Line	[illegible]	[illegible]	No	[illegible]	[illegible]		[illegible]

September 2022



Division:	WMD DEOTHANG
Substation:	132/33/11kV Nganglam Substation
Month:	(BFF)

Sl_No	Substation Name (Select from list)	Feeder Name (Select from list)	Outage Reason (Select from list)	Fault Location (Select from list)	Tripping Date & Time (dd/mm/yyyy hh:mm:ss)	Normalization Date & Time (dd/mm/yyyy hh:mm:ss)	Customers affected (Yes/No)?	Remarks	Outage Duration(hh:mm:ss)	Outage in Minute(s)	No. of Customers Interrupted (Nr)
9	Nganglam	132/33kV, 5MVA Transformer 2	Fault	Transmission Line	02-09-2022 18:01	02-09-2022 18:05	No	Tripped due to 33kv Pasakha feeder	00:04:00	4	0
14	Nganglam	132kV Nganglam-Tashi	Fault	Transmission Line	08-09-2022 11:29	08-09-2022 11:41	No	feeder tripped due to earth fault 86 relay operated,IA=472.7A,IB =97.17A,IC=71.40A,I N=830.1A,VAN=100 Skv,VBN=77.08kv VCN=125.2kv	00:12:00	12	0
15	Nganglam	132kV Nganglam-Tashi	Fault	Transmission Line	08-09-2022 12:01	08-09-2022 12:07	No	Fdr Tripped due to Earth fault. 86 relay operated,IA=382.7A,IB =95.87A,IC=60.53A,I N=438.7A	00:06:00	6	0
52	Nganglam	132kV Nganglam-Tashi	Fault	Transmission Line	23-09-2022 05:18	23-09-2022 05:23	No	Tripped on Overcurrent, Fault details; IA: 1.435KA IB:- 1.360KA IC:- 1.952KA IN:- 253.5A Fault duration 73.31ms Relay Trip Time 75.98ms Fault Location 4.669km Fault resistance 513.6ms A/R Lockout	00:05:00	5	0
53	Nganglam	132kV Nganglam-Tashi	Fault	Transmission Line	23-09-2022 05:30	23-09-2022 12:48	No	Tripped on Overcurrent, Fault details; IA: 1.352KA IB:- 1.279KA IC:-1.203KA IN:- 118.9A Fault duration 71.28ms Relay Trip Time 79.94ms Fault Location 4.013km Fault Resistance 641.3ms	07:18:00	438	0
55	Nganglam	132kV Nganglam-DCCT, Factory	Fault	Transmission Line	25-09-2022 05:47	25-09-2022 05:53	Yes	Over Current	00:06:00	6	1
63	Nganglam	132kV Nganglam-Tashi	Fault	Transmission Line	25-09-2022 02:38	25-09-2022 02:49	No	Earth Fault	00:11:00	11	0

Sl. No.	Date of Tripping	Time of Tripping	Date of Normalizing	Time of Fault was Cleared	Duration of Outage (Hrs)	MW before Outage (MW)	Name of Feeder	Status of the Sub-station/Bays affected by the Fault	Elements of Fault	Relay Operations	Fault Location(KM)	Root cause	Remarks
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
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1													
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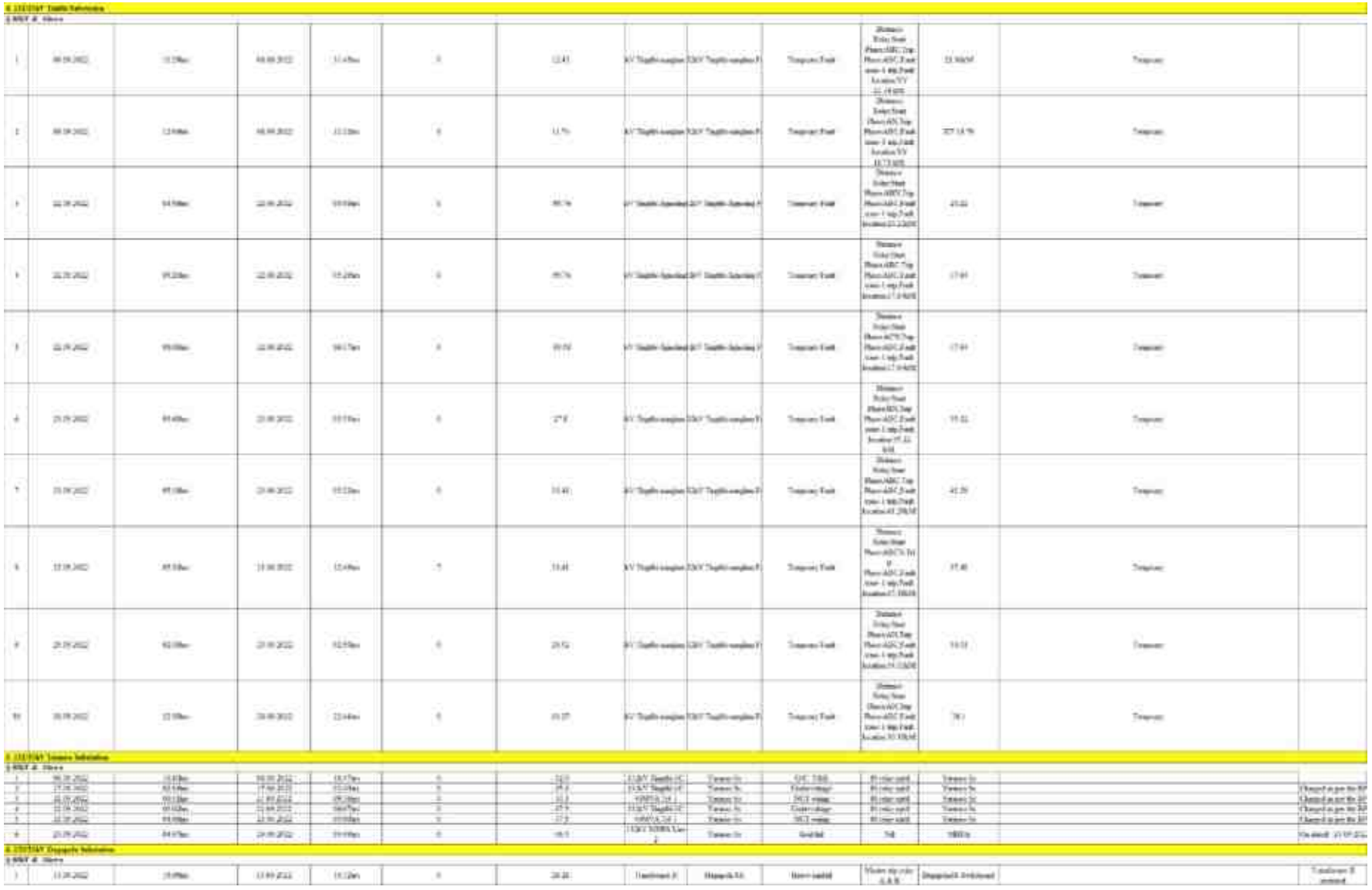
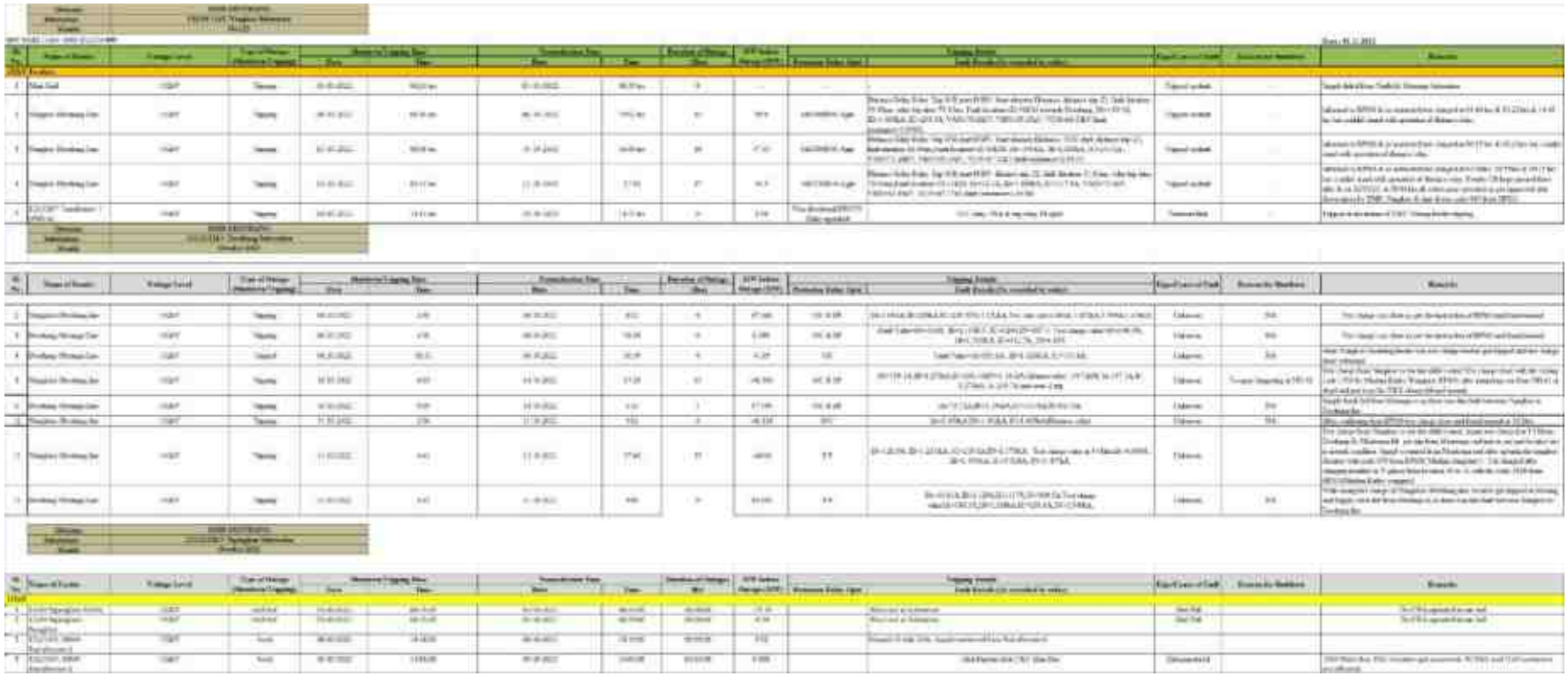


October 2022



November 2022

December 2022

MONTHLY OUTAGE REPORT FOR THE MONTH OF DECEMBER, 2022 UNDER SMD DEOTHANG, TD, BPC.

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Nganglam Substation
Month:	#REF!

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Fault)	Shutdown/Tripping Time		Normalization Time		Duration of Outage	MW before Outage (MW)	Tripping Details		Type/Cause of Fault	Reason for Shutdown	Remarks	
				Date	Time	Date	Time	(Hrs)		Protection Relay Optd	Fault Details (As recorded by relay)				
132kV															Test charged was done and line stand.
1	132/33kV, 5MVA Transformer-1	132kV	Fault	03-12-2022	09:34:00	03-12-2022	09:39:00	00:05:00	0.518	O/C & E/F Relay	triped due to O/C 86 opt				Test charged was done and line stand.
4	132kV Nganglam-Tintibi	132kV	Fault	22-12-2022	15:43:00	22-12-2022	15:58:00	00:15:00	-19.33	O/C & E/F Relay	Triped due to earth fault ,IA66.02A,IB722.0A,IC:114.6A,IN:702.7A				Test charged was done and line stand.

1. 400/220/132/33kV Jigmeling Substation														
Sl. No.	Date of Tripping	Time of Outages/ Time of Tripping	Date of Normalization	Time of Fault was Cleared	Duration of Outages (Hrs)	MW before Outage (MW)	Name of feeder	Name of the Substation/lines Affected by the Fault	Relay Operations	Fault Location(KM)	Type of outages	No. of Customers Affected	Customer * Hours Affected	Remarks
i) 132kV Above														
1	17/12/2022	02:09 hrs	17/12/2022	02:16 hrs	0	75.86	400/220kV ICT	Jigmeling Substation	87T tripped					

Annexure- II

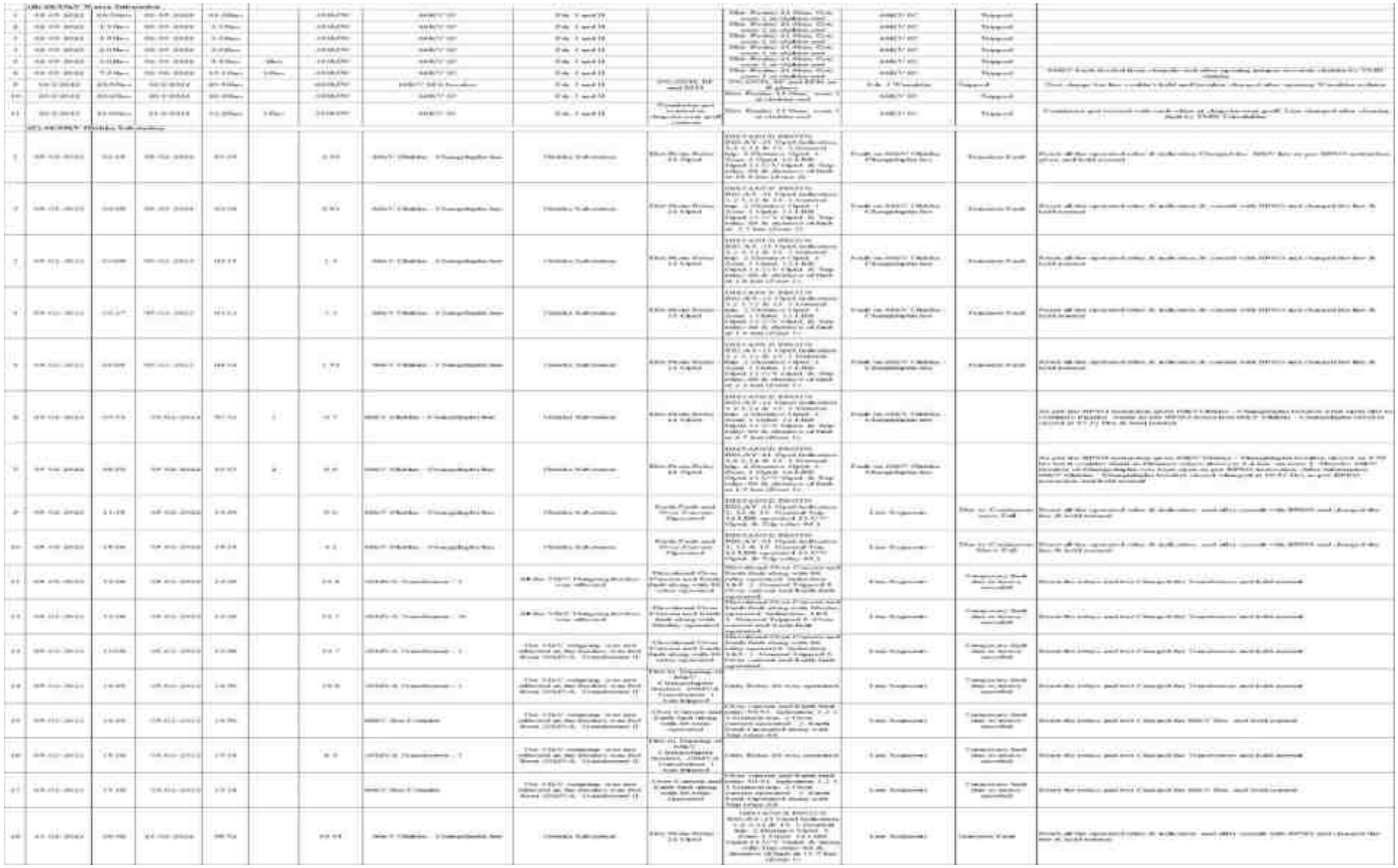
Western Grid Outages
January 2022

Sl No.	Date of Tripping	Time of outages	Date of Normalization	Time of fault was cleared	Duration of Outages (Hrs)	MW before outage (MW)	Feeder Name	Name of the Substation/lines affected by the fault	Reasons of fault	Relay operations	Exact location of fault [Line segment/ Substation]	Type of outages	Remarks
(H) 66/33/11 kV Phuentsholing Substation													
1	06.01.2022	05:24	06.01.2022	11:16	6	5.66	10MVA TRF 66/11kV	10MVA TRF 66/11kV	BUCH Trip	OLTC BUCH Trip, Tripping relay 86	Substation	Tripped on fault	At 05:13hrs 10MVA transformer (66/11kV) got tripped on OLTC BUCH. [illegible] regarding above fault. Issued shutdown with work permit [illegible] for carrying out physical inspection. Released gas and cleaned contact parts. At 11:16hrs normalized the transformer.
Sl No.	**Date of Tripping**	**Time of outages**	**Date of Normalization**	**Time of fault was cleared**	**Duration of Outages (Hrs)**	**MW before outage (MW)**	**Feeder Name**	**Name of the Substation/lines affected by the fault**	**Reasons of fault**	**Relay operations**	**Exact location of fault [Line segment/ Substation]**	**Type of outages**	**Remarks**
(F) 66/33/11kV Lobeysa Substation													
66kV LSA - Basochu feeder													
1	20.01.2022	12:13hrs	20.01.2022	12:49hrs	6	-21.590	66kV LSA - Basochu feeder			50 relay operated			66kV LSA - Basochu feeder got tripped at 12:13hrs and charged the line as per BPSO at 12:49hrs and [illegible] hand tripped as per BPSO at 12:49hrs.
2	20.01.2022	13:09hrs	20.01.2022	13:13hrs	0	-6.840	66kV LSA - Basochu feeder			NA			66kV LSA - Basochu feeder got tripped at 13:09hrs without any relay & breaker operation at our end and supply resumed at 13:13hrs from Basochu and supply extended to Dechhula at 13:14hrs as per BPSO.
66kV LSA - Dechula feeder													
1	20.01.2022	12:49hrs	20.01.2022	13:14hrs	8	15.100	66kV LSA - Dechula feeder			NA			66kV LSA - Dechula feeder hand tripped as per BPSO at 12:49hrs and charged the feeder at 13:14hrs.
(G) 66/33/11kV Dechencholing substation													
1	26.01.2022	14:46hrs	26.01.2022	14:48hrs	0	-33.10	66kV Semtokha IC	whole s/s tde	Supply failed from source				
2	28.01.2022	12:19hrs	28.01.2022	12:59hrs	0	-33.74	-do-	whole s/s tde	Supply failed from source				
3	29.01.2022	07:40hrs	29.01.2022	08:10hrs	0	1.612	66kV [illegible] line	[illegible] line	Transient fault	20A,50D, Dist trip, Zone-1 & Sotf Trip	Distance not shown	tripped	
(H) 66/11kV Haa Substation													
1	17.01.2022	8:20hrs					66/11kV 5MVA transformer - II	66/11kV 5MVA transformer - II	Oil leakage from the 11kV terminal box of Y phase	Buchholz relay	Haa ss	Buchholz relay was operated due to low oil level in the conservator tank of 66/11kV 5MVA transformer - II and also oil leakage from the terminal box of LV line of transformer. The issue was informed to maintenance head SMD, Semtokha for necessary action. Due to lockdown the work couldn't be proceeded further. All thus the supply was fed from 5MVA transformer - I.	Source fail from Chhukha power house. normalized the supply from the source.
(I) 220kV Substation Semtokha													
1	28.01.2022	12:14hrs	28.01.2022	12:49hrs		-43.150	220kV Sem-CHP	Semtokha Substation	CB tripped at CHP end while doing test charge			Transient	
2	28.01.2022	13:12hrs	28.01.2022	14:58hrs	25	45.51	220kV Sem-BHP	220kV SEM-BHP Line	Fault Loop= L1-N	Main 1&2 Trip, fault loop-L1-N, [illegible] 21=221.5A, [illegible]	Distance=5.2KM	Permanent	
3	25.01.2022	12:10hrs	25.01.2022	12:12hrs		14.69	66kV Sem-Dhg Line	66kV Sem-Dhg Line	Broken Conductor	Distance Prot. Optd. BRC Tr	-	Transient	
4	28.01.2022	13:19hrs	28.01.2022	14:48hrs		14.69	66kV Sem-Dhg Line	66kV Sem-Dhg Line	Broken Conductor	Distance Prot. Optd. BRC Tr	-	Transient	
(K) 66/33kV Changjiji/Changidaphu Substation													
1	28.01.2022	12:04hrs	28.01.2022	13:09hrs		3.09	66kV Changidaphu - Olakha	66kV Changidaphu - Olakha	Grid failed	Dist. Prot. Optd, Zone-1, Trip n/p		Transient	
(L) 66/33kV Hungi/Jemina Substation													
1	25.01.2022	1257 hrs	25.01.2022	1257 hrs	0	-0.29	66 kV Incoming Line	Whole Substation	Trip	NA			Line trip from Semtokha Substation
2	28.01.2022	1490 hrs	28.01.2022	1445 hrs	0	-3.19	66 kV Incoming Line	Whole Substation	Trip	NA			Line trip from Semtokha Substation
3	29.01.2022	0752 hrs	29.01.2022	0839 hrs	0	3.01	66 kV Incoming Line	Whole Substation	Trip	NA			Line trip from Dechencholing Substation
(M) 66/11kV Dechula Substation													
1	28/1/2022	11:46	28/1/2022	12:53	0		59 relay	Source Fail from Chhukha & Basochu	Line fault between semtokha to Basochu	Temporary fault	While charging the Basochu line from semtokha Chukha got tripped due to the line fault in between Semtokha to Basochu		
2	28/1/2022	11:36	28/1/2022	12:50	0		59 relay	Source Fail from Chhukha & Basochu	Line fault between semtokha to Basochu	Temporary fault			

February 2022

Sl No.	Date of Tripping	Time of outage	Date of Normalization	Time fault was cleared	Duration of Outage (Hrs)	MW before outage (MW)	Feeder Name	Name of the Substation/Lines affected by the fault	Reasons of fault	Relay operations	Exact location of fault (Line segment/Substation)	Type of outages	Remarks
(a) 400/220/66/11 kV Malbase Substation 66kV & Above													
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Malbase Substation	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Malbase Substation		[illegible]	–	–	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	–	–	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	–	–	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	–	–	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Malbase Substation		[illegible]	–	–	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Malbase Substation		[illegible]	[illegible]	–	[illegible]
(b) 220/66/11 kV Singhigaon Substation													
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
(c) 66/33/11 kV Phuentsholing Substation													
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]		[illegible]
7	[illegible]	[illegible]				[illegible]	[illegible]						[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]						[illegible]

Sl. No.	Date of Tripping	Time of outages	Date of Normalization	Time of fault was cleared	Duration of Outages (Hrs)	MW before outage (MW)	Feeder Name	Name of the Substation/lines affected by the fault	Reasons of fault	Relay operations	Exact location of fault [Line segment/ Substation]	Type of outages	Remarks
(D) 66/33/11 kV Gedu Substation													
1	01.02.2022	16:59	01.02.2022	17:12	0	2.78	66kV Incomer	Gedu Substation	Bad weather condition		Line segment		Tripped on both the 66kV Chukha and Phuntsholing end. Charged from Chukha end
2	02.02.2022	8:04	02.02.2022	8:42	0	2.8	66kV Incomer	Gedu Substation	Bad weather condition		Line segment		Tripped on both the 66kV Chukha and Phuntsholing end. Charged from Phuntsholing end
3	05.02.2022	5:25	05.02.2022	5:31	0	1	66kV Incomer	Gedu Substation	Bad weather condition		Line segment		Tripped on both the 66kV Chukha and Phuntsholing end. Charged from Chukha end
4	20.02.2022	23:10	20.02.2022	23:25	0	1.58	66kV Incomer	Gedu Substation	Bad weather condition		Line segment		Tripped on both the 66kV Chukha and Phuntsholing end. Charged from Chukha end
5	21.02.2022	1:56	21.02.2022	2:21	0	0.93	66kV Incomer	Gedu Substation	Bad weather condition		Line segment		Tripped on both the 66kV Chukha and Phuntsholing end. Charged from Phuntsholing end
6	21.02.2022	15:20	21.02.2022	15:35	0	2.33	66kV Incomer	Gedu Substation	Bad weather condition		Line segment		Tripped on both the 66kV Chukha and Phuntsholing end. Charged from Phuntsholing end
7	25.02.2022	16:16	25.02.2022	16:54	0	2.9	66kV Incomer	Gedu Substation	Bad weather condition		Line segment		Tripped on both the 66kV Chukha and Phuntsholing end. Charged from Chukha end
(E) 66/33/11 kV Gomtu Substation													
1	08.02.2022	18:57	09.02.2022	20:39	1	2.673	66/11kV 10MVA Transformer	Nil	Sparking occurred on LV terminal	Nil	Gomtu Substation	Shutdown	Taken shutdown for new replacement of LV cable termination by maintenance team.
2	09.02.2022	08:11	09.02.2022	08:19	0	4.15	66/11kV 5MVA Transformer	Gomtu Substation	Over load	86 & 30AB Aux Operated	Gomtu Substation		Due to over loading of Transformer got tripped.
3	21.02.2022	15:27	21.02.2022	15:40	0	6.42	66kV Damdum feeder	Gomtu Substation	Nill	Nill	Dhamdhum substation	Transient fault	66kV supply tripped from Damdum Substation, supply fed from P/ling at 15:40 hrs. 66kV Damdum resumed at 17:01 hrs.
(F) 220/66/33 kV Dhamdum Substation													
1	21.02.2022	15:27	21.02.2022	16:00	0	5.35	50/63MVA TRF 1 (203)	Dhamdum	Transient Fault	RET670	N/A	N/A	Fault Mag:128.11KV and Fault angle -7.55Deg.
2	21.02.2022	15:27	21.02.2022	15:59	0	5.32	50/63 MVA TRF 2 (205)	Dhamdum	Transient Fault	RET670	N/A	N/A	Fault Mag:128.11KV and Fault angle -7.55Deg.
3	21.02.2022	15:27	21.02.2022	17:01	1	6.1	66kV Gomtu fdr.	Gomtu	Transient Fault	REL670 General trip,Zone 1 trip, B phase and 86 relay trip.	N/A	-	Fault value:B phase fault mag:3400.74Amp and fault angle -74.35 deg.
Sl. No.	**Date of Tripping**	**Time of outages**	**Date of Normalization**	**Time of fault was cleared**	**Duration of Outages (Hrs)**	**MW before outage (MW)**	**Feeder Name**	**Name of the Substation/lines affected by the fault**	**Reasons of fault**	**Relay operations**	**Exact location of fault [Line segment/ Substation]**	**Type of outages**	**Remarks**
(A) 66kV Chumdo switching station													
1	04.02.2022	2227hrs	05.02.2022	2410hrs	10hrs	2.92MW	66kV Pangbisa feeder	Pangbisa substation	Due to heavy snow fall	0 trip, Y&B ph, CB open.	66kV transmission line	Trip	
2	05.02.2022	0813hrs	05.02.2022	0828hrs		4.22MW	66kV Jemina feeder	Fed from 66kV Chukha feeder	Due to heavy snow fall	0 trip, Y&B ph, CB open.	66kV transmission line	Trip	
3	05.02.2022	0116hrs	05.02.2022	0121hrs		C/1.998MW	66kV Jemina feeder	Fed from 66kV Chukha feeder	Due to heavy snow fall	0 trip, Y&B ph, CB open.	66kV transmission line	Trip	
4	05.02.2022	0112hrs	05.02.2022	0122hrs		0.22MW	66kV Jemina feeder	Fed from 66kV Chukha feeder	Due to heavy snow fall	0 trip, Y&B ph, CB open.	66kV transmission line	Trip	
5	05.02.2022	0638hrs	05.02.2022	1423hrs	8hrs	1.56MW	66kV Jemina feeder	Fed from 66kV Chukha feeder	Due to heavy snow fall	0 trip, Y&B ph, CB open.	66kV transmission line	Trip	
6	05.02.2022	0825hrs	05.02.2022	0856hrs		3.02MW	66kV Paro feeder	Paro substation	Due to heavy snow fall	0 trip, Y&B ph, CB open.	66kV transmission line	Trip	
7	05.02.2022	0358hrs	05.02.2022	1400hrs	10hrs	4.01MW	66kV Paro feeder	Paro substation	Due to heavy snow fall	0 trip, Y&B ph, CB open.	66kV transmission line	Trip	
8	05.02.2022	2316hrs	05.02.2022	0102hrs		C/1.95MW	66kV Chukha feeder	Paro, Pangbisa, Jemina	Due to heavy snow fall	0 trip, Y&B ph, CB open. Z4 prot optd	66kV transmission line	Trip	
9	05.02.2022	0320hrs	05.02.2022	0400hrs	3hrs	C/0.11MW	66kV Chukha feeder	Paro, Pangbisa, Jemina	Due to heavy snow fall	0 trip, Y&B ph, CB open. Z4 prot optd	66kV transmission line	Trip	
10	05.02.2022	0724hrs	06.02.2022	1012hrs	4hrs	C/0.2MW	66kV Chukha feeder	Fed from 66kV Jemina feeder	Due to heavy snow fall	0 trip, Y&B ph, CB open. Z4 prot optd	66kV transmission line	Trip	
11	08.02.2022	1106hrs	08.02.2022	1206hrs	1hr	0.2MW	66kV Chukha feeder	Fed from 66kV Jemina feeder	For jumpering out at Wina T-Off	CB open, Line& Bus isolator open, E switch closed			
12	09.02.2022	1642hrs	09.02.2022	1708hrs		6.42MW	66kV Chukha feeder	Fed from 66kV Jemina feeder	For rejumpering out at Wina T-Off	CB open, Line& Bus isolator open, E switch closed			
13	14.02.2022	0205hrs	14.02.2022	0213hrs		3.80MW	66kV Paro feeder	Paro substation	Transient fault	CB open, OC	Chumdo end	trip	
14	14.02.2022	0604hrs	14.02.2022	0605hrs		2.58MW	66kV Paro feeder	Paro substation	Transient fault	CB open, OC	Chumdo end	trip	
15	14.02.2022	0705hrs	14.02.2022	0721hrs		7.60MW	66kV Paro feeder	Paro substation	Transient fault	CB open, OC	Chumdo end	trip	
16	20.02.2022	2023hrs	20.02.2022	2028hrs		C/1.77MW	66kV Chukha feeder	Fed from 66kV Jemina feeder	Trip	CB open,Dist prot optd, Iph trip	Chumdo end	trip	
17	20.02.2022	2100hrs	21.02.2022	1220hrs	15hrs	C/1.77MW	66kV Chukha feeder	Fed from 66kV Jemina feeder	Trip	CB open,Dist prot optd, Iph trip	Chumdo end	trip	
18	20.02.2022	2125hrs	20.02.2022	2141hrs		3.47MW	66kV Pangbisa feeder	Pangbisa substation	Trip	0 trip, Dist prot optd, Iph	Chumdo end	Trip	
19	21.02.2022	0846hrs	21.02.2022	0858hrs		C/14.87MW	66kV Jemina feeder	Paro,Pangbisa Wina	Trip	No operation at chumdo end	Chunglapha end	trip	



	(D) 66/33/11kV Lobeysa Substation												
	66kV LSA - Basochu feeder												
1	05.02.2022	11:12hrs	05.02.2022	11:23hrs	0	-1.110	66kV LSA - Basochu feeder	66/33/11kV Lobeysa substation		NA			66kV LSA - Basochu feeder tripped at 11:12hrs and charged the line as per BPSO at 11:23hrs from Gewathang substation
	66kV LSA - Dechula feeder												
1	05.02.2022	01:13hrs	05.02.2022	01:49hrs	0	12.920	66kV LSA - Dechula feeder	NA		Dist A/N relay operated			66kV LSA - Dechula feeder tripped at 01:13hrs and informed to BPSO and charged at 01:49hrs as per BPSO.
2	05.02.2022	02:13hrs	05.02.2022	02:29hrs	0	2.410	66kV LSA - Dechula feeder	NA		Dist A/N relay operated			66kV LSA - Dechula feeder tripped at 02:13hrs and informed to BPSO and charged at 02:29hrs as per BPSO with charging code 1211
3	05.02.2022	09:13hrs	05.02.2022	09:13hrs	0		66kV LSA - Dechula feeder	NA		Dist A/N relay operated			66kV LSA - Dechula feeder tripped at 09:13hrs and informed to BPSO and charged at 09:13hrs as per BPSO.
4	05.02.2022	09:19hrs	05.02.2022	10:04hrs	0		66kV LSA - Dechula feeder	NA		Dist A/N relay operated			66kV LSA - Dechula feeder tripped at 09:19hrs and informed to BPSO and charged at 09:13hrs as per BPSO.
5	05.02.2022	13:58hrs	05.02.2022	23:20hrs	12	5.000	66kV LSA - Dechula feeder	NA		Dist A/N relay operated			66kV LSA - Dechula feeder tripped at 13:58hrs and informed to BPSO and charged at 23:20hrs as per BPSO with the closing code 1225
6	15.02.2022	15:58hrs	15.02.2022	16:13hrs	0	-8.010	66kV LSA - Dechula feeder	66/33/11kV Lobeysa substation		NA			66kV LSA - Dechula feeder tripped at 15:58hrs and informed to BPSO and charged at 16:13hrs, at that time supply was feeded from Dechula to Gewathang and since there was line problem between Gewathang to Basochu One phase conductor snapped.
7	15.02.2022	16:20hrs	16.02.2022	17:57hrs	25	-7.990	66kV LSA - Dechula feeder	66/33/11kV Lobeysa substation		Dist A/N relay operated			66kV LSA - Dechula feeder tripped at 16:20hrs and informed to BPSO kept the feeder trip and the supply was restored from Basochu at 19:00hrs and Dechula supply restored at 17:57hrs on 16.02.2022 after reenergizing at tower No 31 with the closing code 1021
	(E) 66/33/11 kV Paro Substation												
1	07.02.2022	04:55hrs 01:20hrs	07.02.2022	09:34hrs 14:40hrs	12		66kV Haa line 66kV Haa line						
2	07.02.2022	24:50hrs 02:20hrs	02:05hrs 14:18hrs	2	0 2		66kV chumdo line	Paro ss	Due to heavy snow fall	No relay operation		Long	
3	14.02.2022	07:55hrs 08:35hrs 07:55hrs	07:18hrs 08:18hrs 07:23hrs		4 5 10		66kV chumdo line	Paro ss	Tripped from changchugangkha	No relay operation		transient	
4	21.02.2022	08:49hrs	21.02.2022	08:59hrs			66kV chumdo line	Paro ss	Tripped from changchugangkha	No relay operation		transient	
	(F) 66/33/11kV Jemina Substation												
1	05.02.2022	00:07	05.02.2022	11:13	11	4.62	Both 66kV feeder chumdo and Changchugkha	Blackout	O/C	196 A/66	line segment		Upon test charging at 14:13 Hrs line stood normal (66kV chumdo)
2	21.02.2022	08:18	21.02.2022	09:09	0		66kV Changchugkha feeder	66kV Changchugkha feeder		No relay operation at jemina end	line segment		66kV supply fail from changchugkha end and resumed at 09:09hrs
	(G) 66/33/11kV Dechencholing substation												
1	05.02.2022	15:55hrs	05.02.2022	17:05hrs	0	17.47	66KV Semtokha IC	whole 11 kV	Supply failed from source. According the Semtokha operator the tripped due to under voltage.				
2	05.02.2022	00:05hrs	05.02.2022	00:05hrs	0	0.767	66KV Dangi Fdr	Dangi line	Tripped on dist relay optd.	Dist relay, 58A, 86B Zone 1	not known	Tripped	Test charged the fdr after getting closing code 1205 from BPSO fdr stood normal.
3	05.02.2022	01:15hrs	05.02.2022	00:40hrs	10hrs	0	66KV Dangi Fdr	Dangi line	Tripped on dist relay & O/C relay	Dist relay, 58A, 86B Zone 1 4.661KM, IA 3.571A, IB 1.819A, IC 1.826A	It is confirmed that line has fault and issued the work permit to Olakha TMD for line patrolling, later they have found that one conductor was snapped and they re-stringing the conductor and brought back line to system on dt 05.02.2022 at 10:40hrs		
4	05.02.2022	09:13hrs	05.02.2022	09:20hrs	0	-4.520	66KV Semtokha IC	whole 11 kV	Supply failed from Source				
5	05.02.2022	09:09hrs	05.02.2022	09:10hrs	0	-4.528	-do-	whole 11 kV	Supply failed from Source				
6	05.02.2022	10:50hrs	05.02.2022	11:00hrs	0	-5.410	-do-	whole 11 kV	Supply failed from Source				
7	15.02.2022	15:55hrs	15.02.2022	16:07	0	-17.38	66KV Semtokha IC	whole 11 kV	Tripped on 86 relay optd	86 relay optd		Tripped	Test charged the fdr as per the instruction BPSO officials since there will be back out
	(H) 66/11kV Haa Substation												
1	06.02.2022	00:16	06.02.2022	00:17	0	-2.01	66kV Incomer	All the feeders	unknown	O/C	Pangbesa	Supply failed from Pangbesa substation on operating over current. The same was normalized from their end	
2	06.02.2022	20:54	06.02.2022	21:04	0	-2.01	66kV Incomer	All the feeders	unknown	O/C on three phases	Chumdo	Supply failed from Pangbesa substation on operating over current. The same was normalized from their end	
3	06.02.2022	22:00	07.02.2022	11:19	13hrs	-2.01	66kV Incomer	All the feeders	conductor twisted	O/C on three phases	Chapcha	Supply failed from Chumdo substation on operating over current. The same was normalized from their end	
4	20.02.2022	21:11	20.02.2022	21:41	0	-2.7	66kV Incomer	All the feeders	unknown	O/C on three phases	Chumdo end	Supply failed from Chumdo substation on operating over current on all the phases. The same was normalized from their end	
5	21.02.2022	08:40	21.02.2022	10:00	0	-2.5	66kV Incomer	All the feeders	unknown	O/C on three phases	Chumdo end	Supply failed from Chumdo substation on operating over current on all the phases. The same was normalized from their end	

(I) 220kV Substation Semtokha

66kV and above Tripping

1	06.02.2022	00.13hrs	06.02.2022	10.25hrs		-89.020	220kV Semt-BHP	Semtokha Substation	Phase to Phase Fault	Main-1 Zone-1 Trip: fault loop- L2-L3	Distance= 11.38KM	Transient
2	09.02.2022	01.41hrs	09.02.2022	02.40hrs		-17.08	66kV Semt-Dechhola Line	Dechhola Substation	Fault Loop= L1-N	Dir. EF Fault, fault loop- L1-N R, Y Bph Trip	Distance=5.9KM	Transient
3	09.02.2022	02.12hrs	09.02.2022	02.16hrs		-1.55	66kV Semt-Dechhola Line	Dechhola Substation	Fault Loop= L2-L3	Dist. Prot. Optd, fault loop- L2-L3	Distance=0.9KM	Transient
4	09.02.2022	04.15hrs	09.02.2022	09.20hrs		-51.16	66kV Semt-Dechhola Line	Dechhola Substation	Fault Loop= L2-L3	Dist. Prot. Optd, 3+2 Trip. YBBph Trip,Fault loop=L2-L3	Distance=0.00KM	Transient
5	09.02.2022	04.30hrs	09.02.2022	09.40hrs		-5.47	66kV Semt-Dechhola Line	Dechhola Substation	Fault Loop= L2-L3	Dist. Prot. Optd, 3+2 Trip. YBBph Trip,Fault loop=L2-L3	Distance=0.00KM	Transient
6	09.02.2022	11.15hrs	09.02.2022	10.40hrs		-0.42	66kV Semt-Dechhola Line	Dechhola Substation	Fault Loop= L2-L3	Dist. Prot. Optd, 3+2 Trip. YBBph Trip,Fault loop=L2-L3	Distance=0.00KM	Transient
7	09.02.2022	10.55hrs	09.02.2022	11.32hrs		-0.42	66kV Semt-Dechhola Line	Dechhola Substation	Fault Loop= L1-L2	Dist. Prot. Optd, 3+2 Trip. YBBph Trip,Fault loop=L1-L2	Distance=0.00KM	Transient
8	09.02.2022	11.45hrs	09.02.2022	22.14hrs	11	-0.42	66kV Semt-Dechhola Line	Dechhola Substation	Fault Loop= L1-L2	Dist. Prot. Optd, 3+2 Trip. YBBph Trip,Fault loop=L1-L2	Distance=0.00KM	Transient
9	15.02.2022	15.57hrs	15.02.2022	16.11hrs		-64.82	66kV Semt-Dechhola Line	Dechhola Substation	Fault Loop= L1-L2	Dist. Prot. Optd, fault loop- L1-L2, (Ia= 539.5A, Ib=525.8A, Ic= 249.5A)	Distance=0.00KM	Transient
10	15.02.2022	16.27hrs	15.02.2022	16.39hrs			66kV Semt-Dechhola Line	Dechhola Substation	Fault Loop= L1-L2	Dist. Prot. Optd, fault loop- L1-L2	Distance=12.69KM	Transient
11	15.02.2022	16.40hrs	17.02.2022	16.58hrs			66kV Semt-Dechhola Line	Dechhola Substation	Fault Loop= L2-N	Dist. Prot. Optd, Yph Trip, fault loop- L2-N	Distance=6.7KM	Transient
12	05.02.2022	02.24hrs	05.02.2022	02.33hrs		-9.12	66kV Semt-Olakha Line	Olakha Substation	Overcurrent Trip	Back Up Relay Optd. Inst Trip, YBBph Trip		Transient
13	05.02.2022	03.11hrs	05.02.2022	03.14hrs		-8.66	66kV Semt-Olakha Line	Olakha Substation	Overcurrent Trip	Back Up Relay Optd, Inst Trip, YBBph Trip		Transient
14	09.02.2022	3.28hrs	09.02.2022	03.33hrs		-8.66	66kV Semt-Olakha Line	Olakha Substation	Overcurrent Trip	Back Up Relay Optd, Inst Trip, YBBph Trip		Transient
15	05.02.2022	04.09hrs	05.02.2022	04.12hrs		-8.11	66kV Semt-Olakha Line	Olakha Substation	Overcurrent Trip	Back Up Relay Optd, Inst Trip, YBBph Trip		Transient
16	09.02.2022	04.54hrs	09.02.2022	05.56hrs		-7.72	66kV Semt-Olakha Line	Olakha Substation	Overcurrent Trip	Back Up Relay Optd, Inst Trip, YBBph Trip		Transient
17	05.02.2022	05.28hrs	05.02.2022	05.55hrs		-15.27	66kV Semt-Olakha Line	Olakha Substation	Overcurrent Trip	Back Up Relay Optd, Inst Trip, YBBph Trip		Transient
18	01.02.2022	16.45hrs	01.02.2022	17.04hrs		-10.65	66kV Semt-Dechencholing Line	Dechencholing Substation	Under Voltage	Dist. Prot Optd, Bph Under Voltage Trip		Transient
19	09.02.2022	01.41hrs	09.02.2022	01.45hrs			66kV Semt-Dechencholing Line	Dechencholing Substation	Overcurrent Trip	Dist. Prot Optd, Over current Trip		Transient
20	09.02.2022	02.12hrs	09.02.2022	02.18hrs		-1.78	66kV Semt-Dechencholing Line	Dechencholing Substation	Overcurrent Trip	Dist. Prot Optd, Over current Trip		Transient
21	09.02.2022	09.10hrs	09.02.2022	09.43hrs		-1.78	66kV Semt-Dechencholing Line	Dechencholing Substation	Under Voltage	Dist. Prot Optd, Under Voltage Trip		Transient
22	09.02.2022	10.37hrs	09.02.2022	10.39hrs		-5.21	66kV Semt-Dechencholing Line	Dechencholing Substation	Under Voltage	Dist. Prot Optd, Under Voltage Trip		Transient
23	09.02.2022	10.45hrs	09.02.2022	10.48hrs		-5.41	66kV Semt-Dechencholing Line	Dechencholing Substation	Under Voltage	Dist. Prot Optd, Under Voltage Trip		Transient
24	09.02.2022	11.43hrs	09.02.2022	11.48hrs		-5.51	66kV Semt-Dechencholing Line	Dechencholing Substation	Under Voltage	Dist. Prot Optd, Under Voltage Trip		Transient
25	09.02.2022	10.41hrs	09.02.2022	10.49hrs		-5.51	66kV Semt-Dechencholing Line	Dechencholing Substation	Under Voltage	Dist. Prot Optd, Under Voltage Trip		Transient
26	09.02.2022	11.59hrs	09.02.2022	12.06hrs		-11.3	66kV Semt-Dechencholing Line	Dechencholing Substation	Broken Conductor	Dist. Prot Optd, Broken conductor Trip		Transient

66kV and above Shutdown

j)66/33/11kV Pangbesa substation													
1	04.02.2022	20.15hrs	04.02.2022	20.29hrs	0	2.27	Haa line out	Haa substation	Due to heavy snow fall	Distance		transient	
2	04.02.2022	20.57hrs	04.02.2022	21.00hrs	0	2.18	Haa line out	Haa substation	Due to heavy snow fall	Distance		transient	
3	04.02.2022	22.27hrs	05.02.2022	14.15hrs	16		66kV chumdo line	Pangbesa- Haa substation	Due to heavy snow fall	No relay operation		Long	
4	05.02.2022	22.27hrs	05.02.2022	14.25hrs	16		66kV chumdo line	Pangbesa- Haa substation	Due to heavy snow fall	No relay operation		Long	
5	05.02.2022	23.50hrs 02.09hrs	06.02.2022	01.02hrs 04.10hrs	0 0		66kV chumdo line	Pangbesa- Haa substation	Due to heavy snow fall	No relay operation		Long	
6	20.02.2022	21.13hrs	20.02.2022	21.45hrs			66kV chumdo line	Pangbesa- Haa substation	Tripped from chumdo			transient	
5	21.02.2022	21.33hrs	20.02.2022	21.43hrs			66kV chumdo line	Pangbesa- Haa substation	Tripped from changedaphu	No relay operation		transient	
	(k) 66/33kV Changidaphu Substation												
1	05.02.2022	04.13hrs	05.02.2022	06.01hrs	1		66kV Changidaphu - Jemina Line	Changidaphu, Jemina, Chumdo, Paro and Haa Substation	Grid failed	CB hand tripped from Jemina end as per BPSO advice		Transient	
2	21.02.2022	08.49hrs	21.02.2022	09.15hrs		18.31	66kV Changidaphu - Jemina Line	Changidaphu	Grid failed	Dist. Prot trip, Zone 1 Y&Bph trip		Transient	
3	05.02.2022	06.03hrs	05.02.2022	08.15hrs	2		66kV Changidaphu - Olakha Line	Olakha, Changidaphu, Jemina, Chumdo, Paro and Haa Substation	Over Current	Dist. Prot trip, Zone 1 RY&Bph trip, Over Current trip		Transient	
	(L) 66/33kV Dauji Substation												
1	01.02.2022	1658 hrs	01.02.2022	1707 hrs	0	-4.45	66 kV Incoming Line	Whole Substation	Trip	NA			Line trip from Semtokha Substation due to under voltage
2	05.02.2022	0002 hrs	11.02.2022	1115 hrs	6 days & 11 hrs	-2.72	66 kV Incoming Line	Whole Substation	Trip	NA			66 kV Line Fault between Dhig & Dauji Substation, kept feeder open
3	15.02.2022	1550 hrs	15.02.2022	1607 hrs	0	-3.47	66 kV Incoming Line	Whole Substation	Trip	NA			Line trip from Semtokha Substation
	(M) 66/11kV Dochula Substation												
1	16/2/2022	14:45	16/2/2022	18:07		6.50.07MW		Shut down taken to connect jumpering at Dochula Tower location SW31 with opening code 3565 and closing code 1283		Tower location SW31	Connection of jumper		

March 2022

Sl. No.	Date of Tripping	Time of tripping	Date of Normalisation	Time of Fault was cleared	Duration of outages (Hrs)	MW before outage (MW)	Feeder Name	Name of the Substation/Bays affected by the fault	Reasons of fault	Relay operations	Exact location of fault (Distance/ segment/ Substation)	Type of outages	Remarks
(a) 400/220/132/11 kV Malbase substation													
4	3.3.22	23:08	4.3.22	1.6.22	4.9		400kV Tsirang-Malbase-IV	Malbase s/s	Overcurrent & Earthfault	[illegible]			[illegible]
5	3.3.22	23:08	4.3.22	1.6.22	4.9		400kV Tsirang-Malbase-I	Malbase s/s	Overcurrent & Earthfault	[illegible]			[illegible]
3	3.3.22	23:08	4.3.22	1.6.22	4.9		400kV Tsirang-Malbase-II	Malbase s/s	Overcurrent & Earthfault	[illegible]			[illegible]
9	3.3.22	23:08	4.3.22	1.6.22	4.9		400kV Bus coupler	Malbase s/s	Overcurrent & Earthfault	220kV bus			[illegible]
(b) Tsirang/132 kV Singhigaon Substation													
8	3.3.22	23:08	4.3.22	1.6.22	4.9	5	132kV Tsirang-Gomtar Feeder	Singhigaon substation	overcurrent	[illegible]			[illegible]
(c) 66/11kV Lobesa Substation													
1	31.12.21	18:08	31.12.21	19:12	1.1	0.58	66kV Incomer	66kV substation	Bad weather conditions, Bird creation, Bad insulation conditions, Bird creation, Bad insulation conditions, Bird creation, Bad insulation conditions, Bird creation, Bad insulation conditions		Line engineer		Tripped on both the 66kV Chukha and Phuentsholing end. Charged from Chukha end.
2	19.01.22	0:08	20.01.22	20:47	20	2.8	66kV Incomer	66kV substation			Line engineer		Tripped on both the 66kV Chukha and Phuentsholing end. Charged from Phuentsholing end.
3	28.01.22	6:25	28.01.22	19:12	13	1	66kV Incomer	66kV substation			Line engineer		Tripped on both the 66kV Chukha and Phuentsholing end. Charged from both ends.
4	28.01.22	19:19	28.01.22	19:29	10	1.88	66kV Incomer	66kV substation			Line engineer		Tripped on both the 66kV Chukha and Phuentsholing end. Charged from both end.
5	23.02.22	1:08	23.02.22	21:21	20	0.74	66kV Incomer	66kV substation			Line engineer		Tripped on both the 66kV Chukha and Phuentsholing end. Charged from Phuentsholing end.
6	23.02.22	15:10	23.02.22	19:54	4.7	0.74	66kV Incomer	66kV substation			Line engineer		Tripped on both the 66kV Chukha and Phuentsholing end. Charged from Phuentsholing end.
7	23.02.22	20:12	23.02.22	20:56	0.9	0.9	66kV Incomer	66kV substation			Line engineer		Tripped on both the 66kV Chukha and Phuentsholing end. Charged from both end.
(d) 400/220/132 kV Tsirang Substation													
1	23.01.2022	18:07	23.01.2022	20:04	1.9	0.58	220kV Tsirang-Lobesa Line-1	Tsirang	Transient Fault	86T/1,2,3	N/A	N/A	Fault 18km, 3.19 kA/E and fault angle = 7.6 deg
2	23.01.2022	18:07	23.01.2022	20:04	1.9	0.58	220kV Tsirang-Lobesa Line-2	Tsirang	Transient Fault	86T/1,2,3	N/A	N/A	Fault 18km, 3.19 kA/E and fault angle = 7.6 deg
3	23.01.2022	18:07	23.01.2022	18:08	0.1	0.1	66kV Incomer bay	Tsirang	Transient Fault	50/51,27/59 Gen over fault, 86T/1,2,3 Gen trip, 64R/Y/B/N Gen E/F, 87G Gen diff	N/A		Fault value(R phase fault) was 2440A 7.6deca and fault angle = 7.6 deg

Tripping Report for the month of FEBRUARY 2022

Sl. No.	Date of Tripping	Time of tripping	Date of Normalisation	Time of Fault was cleared	Duration of Outages (Hrs)	MW before outage (MW)	Feeder Name	Name of the Substation/Bays affected by the fault	Reasons of fault	Relay operations	Exact location of fault (Line segment/ Substation)	Type of outages	Remarks
(a) 400/220 kV Jigmeling switching station													
1	27.01.2022	13:03hrs	27.01.2022	13:03hrs		1.247MW	66kV Jigmeling-Deothang	Jigmeling	Fire	DC, Sub, DB open	Chemithi	Trip	
(b) 66/11kV Wangdue Substation													
1	19.1.2022	14:19hrs	19.1.2022	14:36hrs		18MW	66kV Incomer	66kV Bus 1 and 2		DC, DPTR, EF and EPTR on 66kV phase	66kV Y-B Insulator	Tripped	11 kV circuit breakers (11 kV Bus 1 and 2) tripped on gas 8.0/11 kg/cm2
(c) 66/11kV Lobesa Substation													
1	07.01.2022	14:43hrs	07.01.2022	15:03hrs	0	18.4MW	66kV T-1/A - Deothang Feeder	66/11kV Lobesa substation		NA			66kV T-1/A - Deothang feeder tripped at 14:43hrs and charged the line as gas SF6/11 at 15:03hrs. (Total 0.4hr)
1	07.01.2022	14:43hrs	07.01.2022	15:03hrs	0	34.4MW	66kV T-1/A - Deothang feeder	66/11kV Lobesa substation		NA			66kV T-1/A - Deothang feeder tripped at 14:43hrs and charged the line as gas SF6/O at 15:03hrs. (Total 0.4hr)
(d) 66/33/11kV Deothang substation													
1	01.01.2022	13:33hrs	01.01.2022	13:43hrs	0	10.1	66kV Incomer-II	66kV Transformer-II		Supply failed from source			
2	20.01.2022	13:33hrs	20.01.2022	13:53hrs	0	10.28	66kV Incomer-II	66kV Transformer-II					
3	20.01.2022	14:19hrs	20.01.2022	14:29hrs	11min	9.3MW	66kV Incomer-II	66kV Transformer-II	Tripped at Jigmeling S/S	50/51 over load, 86T/1,2,3 gen trip, 64R/Y/B/N E/F, 87G gen diff	Jigmeling S/S		50/51 relay tripping on over load current (due to low voltage) which was due to interruption in 66kV supply from Jigmeling S/S.
4	20.01.2022	14:19hrs	20.01.2022	14:29hrs	0	0	66kV Incomer-II	66kV Transformer-II		Supply failed from source			
5	25.01.2022	23:23hrs	25.01.2022	10:51hrs	0.5hr	1.5MW	66kV Diesel F/B	Diesel Set	Tripped on over current & Earthfault relay	O/C & E/F relay: 86A, 86B	Diesel S/S	Tripped	Operators observed heavy spark in 3 phase Cable joint at Diesel end & took this down to repair the cable and finished the job
66kV side Bus dues													
1	19.01.2022	14:19hrs	19.01.2022	13.57hrs	0hrs	1.5MW	66kV Diesel F/B	Diesel Set		Shut down when No 3 conductor 630A came on (normal bus 35.5% of Diesel gen is taken care)			
(f) 66/11kV Rta Substation													
1	19.01.2022	9:03	19.01.2022	9:43	0	2.31	11kV Bus coupler	66/11kV Transformer	CTF	Channels	Supply failed from Chendebi substation as operating error occurred. The mess was corrected from their end.	Supply failed from Phuentsholing substation as operating error occurred. The mess was corrected from their end.	
(g) 220kV Substation Semtokha													
1	19.01.2022	14:19hrs	20.01.2022	14:29hrs		10.1MW	220kV Semtokha-Deothang Line	Deothang Substation	Earth Fault	Dist. Trip, 1st Stg.		Channel	
2	20.01.2022	14:19hrs	20.01.2022	14:29hrs		10.1MW	220kV Semtokha-Deothang Line	Deothang Substation	Earth Fault	Dist. Trip, 1st Stg.		Channel	
3	20.01.2022	14:19hrs	20.01.2022	14:29hrs		10.1MW	220kV Semtokha-Deothang Line	Deothang Substation	Earth Fault	Dist. Trip, 1st Stg.		Channel	
4	25.01.2022	23:23hrs	25.01.2022	10:51hrs		10.1MW	220kV Semtokha-Deothang Line	Deothang Substation	Earth Fault	Dist. Trip, 1st Stg.		Channel	
(h) 132/33kV Pangbesa substation													
1	19.01.2022	14:19hrs	19.01.2022	14:29hrs	0	1.5MW	33kV Bus coupler	33kV substation	CTF	Channels		Channel	Heavy overflow
(i) 66/33kV Dagapela Substation													
1	07.01.2022	9:03 hrs	07.01.2022	13:43 hrs	0	4.82	66kV Incoming Line	66kV Substation	Trip	N/A			Line tripped from Samtokha Substation
2	09.01.2022	1:43hrs	09.01.2022	13:03 hrs	0	3.97	66kV Incoming Line	66kV Substation	Disturbance	N/A			Disturbance as well as 3ph. Tripping. Towards 132/66/11kV Lobesa Ss. 66/33 kV Dagapela Substation Line-1 also Tripped due to earth fault in Lobesa substation as well as Lobesa Ss. Line Fault due to earth fault in Lobesa substation as failure of Lightning Arrester. Load decreased 8 mega.
3	20.01.2022	1:03 hrs	20.01.2022	2.03 hrs	1.0	2.9	66kV Incoming Line	66kV Substation	Trip	N/A			
4	24.01.2022	23:03 hrs	25.01.2022	1:43 hrs	0.2	2.9	66kV Incoming Line	66kV Substation	Trip	N/A			66kV Line Earth fault to cross connection to failure of Lightning Arrester at Dagapela S/S Lobesa ss. Power decreased 3 mega. Line Fault due to earth fault in Lobesa substation as failure of Lightning Arrester. Load decreased 8 mega.

April 2022

Sl No.	Date of Tripping	Time of outages	Date of Normalization	Time of fault was cleared	Duration of Outages (Hrs)	MW before outage (MW)	Feeder Name	Name of the Substation/lines affected by the fault	Reasons of fault	Relay operations	Exact location of fault [Line segment/ Substation]	Remarks
(A) 400/220/66/11 kV Malbase Substation												
66kV & Above												
1	10.04.2022	13:02	10.04.2022	13:07	0	7	220kV samtse feeder	Malbase s/s		O/C trip, I >> trip		IL1= 44.40A<234.8deg, IL2=90.3A<235.5deg, IL3=7301A<42.27 deg IL4=7149A<42.78deg
2	10.04.2022	13:02	10.04.2022	13:10	0	25	50/63MVA transformer 3	Malbase s/s		Diff trip		IR=527.52A<-65.09deg, IY=298.26A<173.79deg, IB=25.9A<95.65deg IN=292.13A<-124.45deg
3	14.04.2022	18:22	14.04.2022	18:25	0	-	220kV Bus Coupler	220kV samtse and singhigaon feeder and Malbase s/s		10 trip, 86A and 50/50N trip		Earthfault
4	14.04.2022	18:22	14.04.2022	18:54	0	8	220kV samtse feeder	220kV Bus Coupler		Diff start L3 86 relay optd		I1=2934A<269.3deg, IL2=87.23A<182.5deg, IL3=2947A<53.11deg IL4=1800A<337.8deg
5	14.04.2022	18:22	14.04.2022	18:27	0	26	50MVA transformer III(HV/LV) side	220kV buscoupler and samtse feeder		Diff start L3 86 relay optd, Diff alarm b/k	malbase Substation	I1=55.56A< 89.49deg, I2=57.63A< 35.36deg,I3=60.02A<162.8deg,I4=10.07A155.23deg
6	15.04.2022	01:34	15.04.2022	01:44	0	186	400kV Tala feeder	Malbase s/s	O/C YBB phase(Transient fault)	Air lockout shot, zone 1 trip, FL=18.57kM	18.57kM	IL1=186.5A, IL2=4.073kA, IL3=4.273kA
7	15.04.2022	14:00	15.04.2022	14:05	0	28	66kV Pasakha feeder 4	Malbase S/s	O/C on B phase	Relay 86 optd, general trip IEF 50N trip		IL1=137.27A<-5.27.8deg, IL2= 111.69A<-134.17deg,IL3=1029.25A<72.96deg
8	16.04.2022	19:15	16.04.2022	19:24	0	7	220kV samtse feeder	Malbase S/s	Earthfault	Main I trip, Zone 1 trip	L3-L1 Dist=46.2KM	IL1=2995A<273.8deg, IL2=68.75A<186.2deg,IL3=2035A<51.5degIL4=2001A<314.6deg
9	19.04.2022	17:13	19.04.2022	18:08	0	8	220kV samtse feeder	Malbase S/s		O/C on 3phase	22.1km	I1=377BA<388.2deg,I2=4005A<164.9deg,I3=5088A<37.26deg,I4=1383A<26.58deg
10	27.04.2022	11:03	27.04.2022	11:22	0	9.1	220kV samtse feeder	Malbase S/s	O/C & E/F trip	Main I trip, Zone 1 trip, Trip Y & B/U trip	fault loop L1-N=2.8km	IL1=8343A<288.9deg,IL2=89.17A<113.4deg,IL3=94.11A<110.0deg,IL4=7931A<293.5deg
11	27.04.2022	11:03	27.04.2022	11:17	0	23	50/63MVA transformer 1	Malbase S/s		LBBtrip, general trip, relay86 optd		IL1=73.68A<-10.2deg,IL2=82.54A<-64.2deg,IL3=154.98A<-1.72deg
12	27.04.2022	11:03	27.04.2022	11:19	0	25	50/63MVA transformer 3	Malbase S/s		Diff trip, 27trip and B/U trip		IL1=106.55A<115.19deg,IL2=96.6A<170.17deg,IL3=74.83A<121.3deg,IL4=342.7A<129.47deg
13	29.04.2022	08:11	29.04.2022	08:16	0	87	200MVA ICT	Malbase S/s		Diff Y phase,67 O/C, 86 optod		IL1=53.08A<139.7deg,IL2=34.71A<15.76deg,I3=32.8A<-108.3deg
14	30.04.2022	12:45	30.04.2022	12:48	0	87	200MVA ICT	Malbase S/s		Diff trip, diff B phase,M & Ti CB open, 86 opt		IL1=81.84A<103.3deg,IL2=113.9A<-13.39deg,I3=113.4A<-172.1deg
(B)220/66/11 kV Singhigaon Substation												
1	14.04.2022	18:22	14.04.2022	23:19	4	1.9	220kV Singhi samtse feeder	Singhi S/s	O/C	86 optod,O/C relay	line	I1=2140A, I2=84.91A, I3=3513A, I4=1454A
2	16.04.2022	14:00	16.04.2022	15:08	1	35	66kV BFAL feeder	Singhi S/s	O/C on B phase	General trip, O/C trip, Dir Time O/C trip, IE >> DIR trip, I>> Dir trip, IEF DIR TRIP		I1=1.10kA,IL2=1.24kA,IL3=11.74kA

(B)66/33/11 kV Phuentsholing Substation												
1			01.04.2022	10:18	10	idle	66kV Pling-Malbase feeder					At 10:18hrs charged 66kV Pling-Malbase feeder which was under idle charged condition with closing code 1176 from RPSO, since there was shutdown on 66kV Chukha-Pling (Chukha Gedu section for ROW clearing and replacement of disc insulators at PC 135 & 136. At 17:55hrs 66kV Pling-Malbase feeder kept under idle condition with opening code 0475 from RPSO. (CB opened at our end).
2			01.04.2022	10:30	10	idle	66kV Pling-Malbase feeder					At 10:30hrs charged 66kV Pling-Malbase feeder which was under idle charged condition with closing code 1182 from RPSO, since there was shutdown on 66kV Pling-Gomtu feeder for carrying out re-alignment of isolators, checking of control circuit and arresting of oil seepage from PT. At 20:38hrs 66kV Pling-Malbase feeder kept under idle condition with opening code 0184 from RPSO. (CB opened at our end).
##	04.04.2022	04:02	04.04.2022	04:05	0		66kV Chukha and 66kV Gomtu feeder	66kV Chukha and 66kV Gomtu feeder	Tripped at their end	Nil	Tripped at their end	Phuentsholing got black out, since both 66kV Chukha and 66kV Gomtu feeder got tripped from their end.
##			07.04.2022	15:08	10	idle	66kV Pling-Malbase feeder					At 15:08hrs charged 66kV Pling-Malbase feeder which was under idle charged condition with closing code 1420 from RPSO, since there was shutdown on 66kV Pling-Gomtu feeder for rectification of Bus isolator of 5MVA transformer at Gomtu end. At 20:59hrs 66kV Pling-Malbase feeder kept under idle condition with opening code 0500 from RPSO. (CB opened at our end).
##			10.04.2022	16:56	16	idle	66kV Pling-Malbase feeder					At 16:56hrs charged 66kV Pling-Malbase feeder which was under idle charged condition with closing code 1444 from RPSO, since there was shutdown on 66kV Pling-Gomtu feeder for carrying out maintenance on 66kV Bus isolator of 5MVA transformer at Gomtu end. At 19:08hrs 66kV Pling-Malbase feeder kept under idle condition with opening code 0517 from RPSO. (CB opened at our end).
##	14.04.2022	18:26	14.04.2022	18:26	0		66kV Chukha and 66kV Gomtu feeder	66kV Chukha and 66kV Gomtu feeder	Tripped at their end	Nil	Tripped at their end	Phuentsholing got black out, since both 66kV Chukha and 66kV Gomtu feeder got tripped from their end.
##	16.04.2022	15:32	16.04.2022	15:45	0	1.97	66kV Chukha-Pling feeder	66kV Chukha-Pling feeder	Tripped at both end	Dist Optd. 106 & 56	Substation	The cause of tripping was due to transient fault.
##	16.04.2022	20:25	16.04.2022	20:30	0	1.93	66kV Chukha-Pling feeder	66kV Chukha-Pling feeder	Overcurrent	I>>, Ia: 1.0553kA, Ib: 1.037kA, Ic: 54.36A Vab: 11.89kV, Vbc: 56.37kV, Vca: 57.08kV Ic measured: 7.003A Ie derived: 7.182A, Van: 20.24kV, Vbn: 18.67kV, Vcn: 38.38kV & 86	Tripped at their end	The cause of tripping was due to transient fault.
##	29.04.2022	00:11	29.04.2022	00:18	0	1.90	66kV Chukha-Pling feeder	66kV Chukha-Pling feeder	Tripped at both end	Dist Optd. 106 & 86	Tripped at both end	The cause of tripping was due to transient fault.
(D) 66/33/11 kV Gedu Substation												
1	01.04.2022	10:25	01.04.2022	17:08	6	2.023	66kV Chukha-Gedu section	Nil	Critical tree falling within the ROW and replacement of disc insulators at PC-135 and 136.		Line segment	Shutdown taken by TMD BPC Chukha for Critical tree falling within the ROW and replacement of disc insulators at PC-135 and 136.
2	04.04.2022	4:00	04.04.2022	4:05	0	2	66kV Chukha-Pling Supply tripped.	Blackout	Bad weather		Line segment	Charged from Chukha
3	14.04.2022	18:26	14.04.2022	18:30	0	3.045	66kV Chukha-Pling Supply tripped.	Blackout	Bad weather		Line segment	Charged from Chukha
4	16.04.2022	15:24	16.04.2022	15:43	0	0.68	66kV Chukha-Pling Supply tripped.	Blackout	Bad weather		Line segment	Charged from Chukha
5	16.04.2022	20:22	16.04.2022	20:31	0	1.68	66kV Chukha-Pling Supply tripped.	Blackout	Bad weather		Line segment	Charged from Chukha

(E) 66/33/11 kV Gomtu Substation												
1	03.04.2022	10:44	03.04.2022	12:49	2	3.06	66/11kV 5MVA Transformer	Nil	For sealing bus PT leakage	Nil	Gomtu Substation	Shutdown for sealing bus PT leakage against work permit NO. 12
2	03.04.2022	10:44	03.04.2022	20:25	9	3.06	66kV Pling feeder	Nil	Maintenance	Nil	Gomtu Substation	Availed shutdown by GMU for sealing Bus PT leakage, fix line isolator alignment and CT and breaker testing. Against work permit NO. 12
3	04.04.2022	03:37	04.04.2022	04:10	0	3.068	66kV Dhamdhum feeder	Nil	General trip	Zone 1, Z-Com & Y PH fault	Damdum Substation	Supply failed from Dhamdhum end
4	04.04.2022	04:02	04.04.2022	04:05	0	2.08	66kV Pling feeder	Gomtu	General trip	Nil	Line Segment	Grid failed
##	14.04.2022	18:29	14.04.2022	19:01	0	-7.137	66kV Dhamdhum feeder	Gomtu	Grid failed	Nil	Line Segment	Grid failed and supply resumed at 19:01 hrs.
##	14.04.2022	18:29	14.04.2022	18:28	0	5.59	66kV Pling feeder	Gomtu	Grid failed	Nil	Line Segment	Grid failed and supply resumed at 18:28 hrs.
##	16.04.2022	19:22	16.04.2022	19:39	0	-6.184	66kV Dhamdhum feeder	Nil	General trip	Nil	Line Segment	Charged against charging code no.1021 provided by BPSO and charge withstand
##	25.04.2022	14:25	25.04.2022	16:25	2	0.01	66/33/11kV 5MVA Transformer	Nil	Oil leakage	Nil	Gomtu Substation	Availed shutdown by Substation Head against Work Permit No. 001 for sealing oil leakage form OLTC tank
##	27.04.2022	11:25	27.04.2022	11:41	0	0.268	66kV Pling feeder	Nil	Transient fault	Nil	Gomtu Substation	Charged the line after informing BPSO and charge withstand. Charging code 1001
(F) 220/66/33 kV Dhamdhum Substation												
1	14.04.2022	18:32	14.04.2022	18:58	0	-8.35	220kV Malbase	Dhamdhum	heavy rain with thunder storm and wind	REL 670 trip	NA	Line tripped due to O/C on R&DS Zone 1(General trip)
2	14.04.2022	18:32	15.04.2022	19:40	24	-1.66	Singaygaon	Dhamdhum	heavy rain with thunder storm and wind	REL 670 trip	NA	Line tripped due to O/C on R&DS Zone 1(General trip) Fdr charged against charging code no 1007 from Karma Yangden from BPSO.
3	16.04.2022	19:14	16.04.2022	19:21	0	-1.70	220kV Singaygaon	Dhamdhum	heavy rain with thunder storm and windy	REL 670 trip	NA	Line tripped due to O/C on R&DS Zone 1(General trip) Fdr charged against charging code no 1020 from Karma Yangden from BPSO.
4	16.04.2022	19:22	16.04.2022	19:30	0	-8.42	220KV Malbase	Dhamdhum	heavy rain with thunder storm and wind	REL 670 trip	NA	Line tripped due to [General trip]. Over voltage OPTD. Fdr charged against charging code no 1019 from Karma Yangden from BPSO.
5	16.04.2022	19:22	16.04.2022	19:58	0	6.65	66kV Gomtu feeder	Dhamdhum	heavy rain with thunder storm and wind	REL 670 trip	NA	Line tripped due to B6 to faulty and CB trouble. Fdr charged against charging code no 1021 from Karma Yangden from BPSO.
6	19.04.2022	17:13	19.04.2022	17:25	0	-3.65	Singaygaon Feeder	Dhamdhum	heavy rain with thunder storm and wind	REL 670 trip	NA	Line tripped due to O/C on R&DS, Zone 1(General trip) and over voltage OPTD.Fdr charged against charging code no - Nil from BPSO T/Phu.
7	19.04.2022	17:16	19.04.2022	19:07	0	-9.83	220KV Malbase feeder	Dhamdhum	heavy rain with thunder storm and wind	REL 670 trip	NA	Line tripped due to General trip, zone 1 trip, RYB Phase trip and Over voltage OPTD. Fdr charged against charging code no 1031 from BPSO.
8	04.03.2022	03:37	04.03.2022	04:10	0	2.88	66kV Gomtu feeder	Gomtu substation	Trip	General trip,zone1 trip,R and Y phase fault	NA	Heavy lightening and thunder .The feeder was triped at 3:37hrs, test charge at 3:47hrs with the charging code from BPSO 1391, but the feeder could not stand as as informed to BPSO and suggested us to charge after weather improves since there is no power interruption in Gomtu substation as power supply is from Phuntsholing substation. As weather improved, 66kv Gomtu feeder was charged at 4:10hrs with charging code 1392 from BPSO
9	14.04.2022	18:32	14.04.2022	18:59	0	7.13	66kV Gomtu feeder	Gomtu substation	Trip	N/A	N/A	Line tripped due to O/C on R&yB(General trip)
10	14.04.2022	22:55	14.04.2022	23:10	0	3.65	66kV Gomtu feeder	Gomtu substation	Trip	General trip,zone1 trip,B and Y phase fault	NA	Heavy lightening and thunder .The feeder was triped at 22:55hrs, test charge at 23:10hrs

Sl No.	Date of Tripping	Time of outage	Date of Normalization	Time of fault was cleared	Duration of Outages (Hrs)	MW before outage (MW)	Feeder Name	Name of the Substation/Bays affected by the fault	Reasons of fault	Relay operations	Exact location of fault (Line segment/ Substation)	Type of outage	Remarks
	(A) 66kV Chumdo switching station												
1	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	66kV Paro feeder	Paro SS	transient fault	[illegible]	Chumdo	Trip	
	(B) 66/33kV Watsa Substation												
1	29-4-2022	14:54hrs	29/4/2022	17:00hrs		[illegible]	66kV [illegible]	[illegible]	OC, OC/EEF and EFD on ABC phase	OC, OC/EEF and EFD on ABC phase	[illegible]		[illegible]
1	29-5-2022	[illegible]	29-5-2022	[illegible]		2.40	66kV [illegible]	[illegible]	Over current	Over Current relay operated		Tripped	[illegible]
	(C) 66/33kV Olakha Substation												
8	06-04-2022	12:25	06-04-2022	12:27		23.95	66kV Olakha Semtokha Line	Olakha SS	While testing	NA	Olakha SS	Testing	[illegible]
8	12-04-2022	12:08	12-04-2022	12:53		Not recorded in SCADA	66kV Bus coupler	Olakha Substation	While doing DI relays connection and wiring for TCCB	[illegible]	Substation	Transient	[illegible]
9	14-04-2022	12:30	14-04-2022	12:51		9.9	20MVA Transformer - I	Olakha Substation		[illegible]	Langjophakha SS	33kV line Langjophakha feeder	[illegible]
10	14-04-2022	12:42	14-04-2022	12:44		9.9	20MVA Transformer - I	Olakha Substation		[illegible]	Langjophakha SS	33kV line Langjophakha feeder	[illegible]
	(D) 66/33/11kV Lobeysa Substation												
	66kV LSA - Gewathang feeder												
1	17.04.2022	[illegible]	17.04.2022	[illegible]	0	[illegible]	66kV LSA - Gewathang feeder	NA		[illegible]			[illegible]
2	18.04.2022	[illegible]	18.04.2022	[illegible]	0	[illegible]	66kV LSA - Gewathang feeder	66/33/11kV Lobeysa substation		[illegible]			[illegible]
3	22.04.2022	[illegible]	22.04.2022	[illegible]	0	[illegible]	66kV LSA - Gewathang feeder	66/33/11kV Lobeysa substation		[illegible]			[illegible]
4	27.04.2022	[illegible]	28.04.2022	[illegible]	1	[illegible]	66kV LSA - Gewathang feeder	NA		[illegible]			[illegible]
	66kV LSA - Dochula feeder												
1	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	66kV LSA - Dochula feeder	NA		[illegible]			[illegible]
2	22.04.2022	[illegible]	22.04.2022	[illegible]	0	[illegible]	66kV LSA - Dochula feeder	66/33/11kV Lobeysa substation		[illegible]			[illegible]
	(E) 66/33/11 kV Paro Substation												
1	[illegible]	[illegible]	[illegible]	[illegible]	0		66kV Chumdo Line [illegible]	[illegible]	[illegible]				

	(F) 66/33/11kV Jemina Substation												
	Nil												
	(G) 66/33/11kV Dechencholing substation												
1	22/04/2022	23:54hrs	22/04/2022	21:10hrs	0	-23.43	66KV Semtokha IC	whole s/s [illegible]	Incomer tripped on broken conductor	Distance relay and [illegible]	Not known	tripped	Test charged the line found healthy
2	27/04/2022	23:54hrs	27/04/2022	23:07hrs	0	25.11	66KV Semtokha IC	whole s/s [illegible]	Incomer tripped on broken conductor	Distance relay and [illegible]	Not known	tripped	Test charged the line found healthy
	(H) 66/11kV Haa Substation												
	Nil												
	(I) 220kV Substation Semtokha												
1	22/04/2022	21:17hrs	22/04/2022	21:19hrs			66kV Semtokha-Dochula Line	Dochula substation		Distance relay optd, Zone 1 trip [illegible]	Distance=[illegible]	Transient	
2	29/04/2022	23:08hrs	29/04/2022	23:53hrs	1.50	-80.190	No Interruption	Shutdown availed by [illegible]				Transient	
	(J) 66/33/11kV Pangbesa substation												
	Nil												
	(K) 66/33kV Changjiji Substation												
	Nil												
	(L) 66/33kV [illegible] Substation												
1	18/04/2022	13:59 hrs	18/04/2022	13:53 hrs	0	-4.14	66 KV Incoming Line	Whole Substation	Trip	NA			Line tripped from Semtokha Substation
2	22/04/2022	23:35 hrs	22/04/2022	23:18 hrs	0	-4.55	66 KV Incoming Line	Whole Substation	Trip	NA			Line tripped from Semtokha Substation
3	27/04/2022	23:05 hrs	27/04/2022	23:09 hrs	0	-1.22	66 KV Incoming Line	Whole Substation	Trip	NA			Line tripped from Dechencholing Substation
	(M) 66/11kV Dochula Substation												
1	22/04/2022	21:18	22/04/2022	21:21	0	31.74	Semtokha	All 11kV/33kV and 11kV 33/11kV Transformer	Under Voltage	86 Relay	Dochula, Lobesa and semtokha all end breaker open	Temporary fault	All BHU Fans Home
2	27/04/2022	15:08	27/04/2022	15:14	0	31.75	Semtokha		Under Voltage	86 Relay	Dochula end breaker open	Temporary fault	
3	22/04/2022	21:18	22/04/2022	21:39	0	30.18	Lobesa		Under Voltage	86 Relay	Dochula, Lobesa and semtokha all end breaker open	Temporary fault	
4	27/04/2022	15:08	27/04/2022	15:26	0	40.07	Lobesa		Under Voltage	86 Relay	Dochula end & Lobesa end breaker open	Temporary fault	

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Sl No.	Date of Tripping	Time of outages	Date of Normalization	Time of fault was cleared	Duration of Outages (Hrs)	MW before outage (MW)	Feeder Name	Name of the Substation/lines affected by the fault	Reasons of fault	Relay operations	Exact location of fault [Line segment/ Substation]	Type of outages	Remarks
(A) 400/220/66/11 kV Malbase Substation													
66kV & Above													
1	17/5/2022	12:03	17/5/2022	12:10	0	24	66kV Pasakha feeder I	Malbase Ss	O/C & E/F	General trip O/C & E/F			IL1=2319.32 /52.57degIL2=2284/ 88.20degIL3=198.06A/94.03degIL4=2333.57A/ 126.94deg
2	17/5/2022	12:03	17/5/2022	12:10	0	24	66kV Pasakha feeder II	Malbase Ss	O/C & E/F	General trip O/C & E/F			IL1=0.11A/107.34degIL2=1244.25A/86.83degIL3=600.86A/106.94degIL4=0.11A/107.34deg
3	21-05-2022	03:34	21-05-2022	03:45	0	106.18	400kV Malbase- Siliguri fdr.	Malbase Ss	transient fault	General trip,186(HYB) optd			IL1=290.7A/51.77degIL2=119.4A/311.7degIL3=1364A/65.23degIL4=1646A/58.16 deg
	(B) 66/33kV Watsa Substation												
1	05-05-2022	11:59hrs	05-05-2022	12:26hrs		7.230MW	66KV SF6 breaker	Fdr. 1 and II	WTI tripped	WTI tripped	8MVA transformer	Tripped	WTI tripped and reset the temperature to 75 with consultation with Mr. Head SMD, and the line charged
	(C) 66/33kV Olakha Substation												
	Nil												
	(D) 66/33/11kV Lobeysa Substation												
	66kV LSA - Gewathang feeder												
1	10.05.2022	15:11hrs	10.05.2022	15:18hrs	0	-14.040	66kV LSA - Gewathang feeder	66/33/11kV Lobeysa substation		OC & EF relay operated			66kV LSA - Gewathang feeder tripped at 15:11hrs and supply resumed at 15:18hrs
2	11.05.2022	20:33hrs	11.05.2022	20:38hrs	0	-18.200	66kV LSA - Gewathang feeder	66/33/11kV Lobeysa substation		OC & EF relay operated			66kV LSA - Gewathang feeder tripped at 20:33hrs informed to BPSO and line charged at 20:38hrs from Gewathang ss and line extended to Dochula at 20:41hrs
3	19.05.2022	14:20hrs	19.05.2022	14:55hrs	0	-17.240	66kV LSA - Gewathang feeder	66/33/11kV Lobeysa substation		OC & EF relay operated			66kV LSA - Gewathang feeder tripped at 14:20hrs and charged the line as per BPSO at 14:55hrs

	66kV LSA - Dechula feeder												
1	10.05.2022	15:11hrs	10.05.2022	15:18hrs	0	10.470	66kV LSA - Dechula feeder	NA		OC & EF relay operated			66kV LSA - Dechula feeder tripped at 15:11hrs and supply resumed at 15:18hrs.
2	11.05.2022	20:33hrs	11.05.2022	20:38hrs	0	18.280	66kV LSA - Dechula feeder	NA		OC & EF relay operated			66kV LSA - Dechula feeder tripped at 20:33hrs informed to BPSO and line charged at 20:38hrs from Gewathang ss and line extended to Dechula at 20:41hrs.
3	29.05.2022	22:08hrs	29.05.2022	22:38hrs	0	12.290	66kV LSA - Dechula feeder	NA		Dist. relay operated(IA-8.5 IB-879.2A IC-979.4A)			66kV LSA - Dechula feeder tripped at 22:08hrs informed to BPSO and line charged at 22:30hrs from Gewathang ss and line extended to Dechula at 22:38hrs.
66/33kV,5MVA Transformer & All 33kV OG feeders connected together)													
1	10.05.2022	15:23hrs	10.05.2022	16:08hrs	0	1.380	33kV OG-1	33kV O.G-1	Line fault	IDMT- E/F (IA-168.1A IB-272.8A IC-110.8A IN-217.8A)	NA	Line fault	66/33kV Transformer - 4 feeder trip on IDMT E/F at 15:11hrs and test charged at 15:12hrs could not stand and informed to ESD Punakha regarding the line fault and line charged at 16:08hrs and line stand thereafter after opening GO at Punakha area.
2	14.05.2022	05:02hrs	14.05.2022	05:37hrs	0	0.830	33kV O.G-2	33kV O.G-2	Line fault	IDMT- E/F & O/C	NA	Line fault	66/33kV Transformer - 4 feeder trip on IDMT E/F & OC at 05:00hrs and test charged at 05:17hrs could not stand and informed to ESD Wangdue regarding the line fault and line charged at 05:37hrs and line stand thereafter.
3	14.05.2022	11:53hrs	14.05.2022	12:08hrs	0	1.170	33kV O.G-2	33kV O.G-2	Line fault	IDMT- E/F& O/C	NA	Line fault	66/33kV Transformer - 4 feeder trip on IDMT E/F & OC at 11:53hrs and test charged at 11:54hrs could not stand and informed to ESD Wangdue regarding the line fault and line charged at 12:08hrs and line stand thereafter.
	(L) 66/33kV Dunji Substation												
1	11.05.2022	2033 hrs	11.05.2022	2058 hrs	0	-4.17	66 kV Incoming Line	Whole Substation	Trip	NA			Grid Failure
2	15.05.2022	1420 hrs	15.05.2022	1425 hrs	0	-4.17	66 kV Incoming Line	Whole Substation	Trip	NA			Line tripped from Semtokha Substation
3	19.05.2022	1035 hrs	19.05.2022	1040 hrs	0	-4.13	66 kV Incoming Line	Whole Substation	Trip	NA			Line tripped from Dechencholing Substation Grid Failure
	(M) 66/11kV Dechula Substation												
1	10-05-2022	15:11	05-10-2022	15:21	0	-32.5	Semtokha	All Farm House	Under voltage	86	Under voltage and 86 relay operated at Dechula and Supply fail from Semtokha.		
2	11-05-2022	20:33	05-11-2022	20:38	0	-32.33	Semtokha	All Farm House	Under voltage	86	Under voltage and 86 relay operated at Dechula and Supply fail from Semtokha.		
3	15-5-2022	14:19	15-5-2022	14:32	0	-30.38	Semtokha	All Farm House	Under voltage	86	Under voltage and 86 relay operated at Dechula and Supply fail from Semtokha		
4	29-5-2022	22:08	29-5-2022	22:23	0	-32.1	Semtokha	All Farm House	Under voltage	86	Under voltage and 86 relay operated at Dechula and Supply fail from Semtokha		
5	10-05-2022	15:11	05-10-2022	15:31		-30.41	Lobesa	All Farm House	Under voltage	86	Under voltage and 86 relay operated at Dechula and Supply fail from Semtokha		
6	11-05-2022	20:33	05-11-2022	20:45	0	-30.42	Lobesa	All Farm House	Under voltage	86	Under voltage and 86 relay operated at Dechula and Supply fail from Semtokha and lobeysa		
7	15-5-2022	14:19	15-5-2022	14:37	0	-28.25	Lobesa	All Farm House	Under voltage	86	Under voltage and 86 relay operated at Dechula and Supply fail from Semtokha and lobeysa		
8	29-5-2022	22:08	29-5-2022	22:36	0	-30.17	Lobesa	All Farm House	Under voltage	86	Under voltage and 86 relay operated at Dechula and Supply fail from Semtokha and lobeysa		

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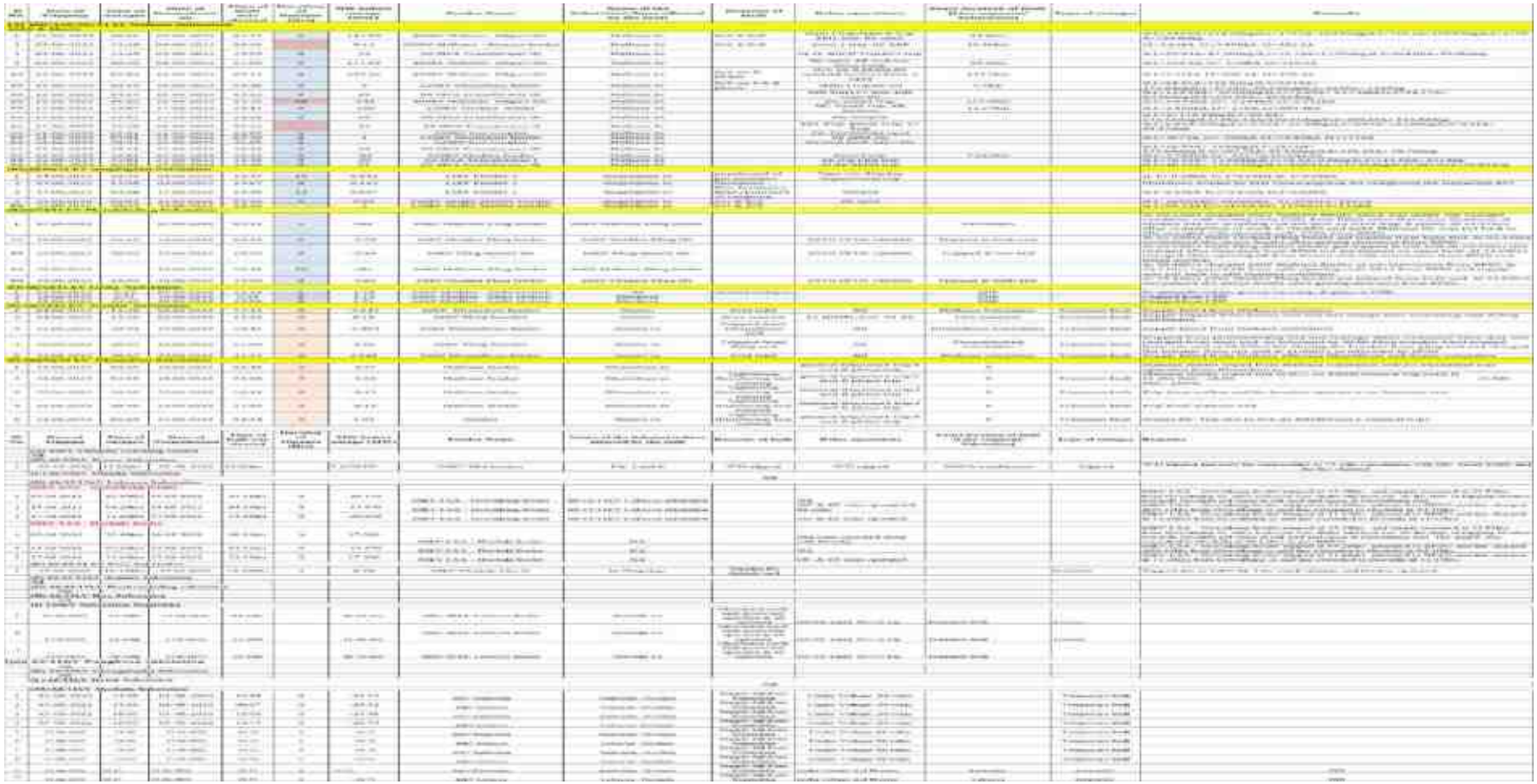

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Sl No.	Date of Tripping	Time of outages	Date of Normalization	Time of fault was cleared	Duration of Outages (Hrs)	MW before outage (MW)	Feeder Name	Name of the Substation/lines affected by the fault	Reasons of fault	Relay operations	Exact location of fault (Line segment/ Substation)	Type of outages	Remarks
66kV & Above													
(A) 400/220/66/11 kV Malbase Substation													
1	01.07.22	07:46	01.07.22	08:06	0	551.27	400kV Malbase- Siliguri fdr.	Malbase Ss	O/C & E/F	Main I trip, Main II CAR REV, 2983 trip, fuse fail	193km		IL1=1672A/301.7deg,IL2=748.2A/255.5deg,IL3=718.4A/133.1deg,IL4=1599A/278.5deg
2	03.07.22	17:20	03.07.22	17:27	0	151.9	200kV Malbase - Chukha feeder	Malbase Ss	O/C & E/F	Zone 1 trip, All lock out shut	Zone 1= 0.001km		IA=3.679kA, I2=3.967kA, I3=3.772kA
##	10.07.22	03:06	10.07.22	06:35	3	5.6	200kV Malbase - Samtse feeder	Dhamdum Ss	O/C on B phase	86 oprd			IL1=75.95A/230.7deg,IL2=116.5A/235.1deg,IL3=25.95A/41.95deg,IL4=2347A/41.50deg
##	20.07.22	08:20	20.07.22	09:09	0	226	400kV Malbase- Siliguri fdr.	Malbase Ss & Siliguri Ss	O/C on Y & B phase	Zone 1 trip	38.53km		IL1=750A, I2= 3939A, I3=3623A
##	23.07.22	17:11	23.07.22	17:23	0		66kV Bus Coupler	Malbase Ss	O/C				R=13737.24A, Y=11481.82A, B=14715.29A
##	23.07.22	17:11	23.07.22	17:25	0	22	66kV Pasakha feeder I	Malbase Ss	O/C				R=129.11A/-103.18deg, Y=1796.66A/139.38deg, B=1230.16A/17.55A
##	23.07.22	17:11	23.07.22	18:24	1	0	66kV pling feeder	Malbase Ss	O/C				R=11.26kA, Y=11.72kA, B=1.32kA
##	28.07.22	11:38	28.07.22	13:55	2	20	66kV Pasakha feeder I	Malbase Ss		IEF 50N_trip, 86 oprd, general trip			IL1=210.56A/-82.05deg, IL2=925.15A/19.83deg, IL3=279.19A/90.05deg, IL4=976.52A/-156.85 deg
##	28.07.22	11:38	28.07.22	23:47	12	21	66kV Pasakha feeder II	Malbase Ss		51 Trip, 86 oprd, General trip			IL1=0.19A/ 0.05deg, IL2=656.02A/-156.39deg, IL3=662.78A/23.20deg, IL4=0.15A/ 0.9 deg
##	28.07.22	11:38	28.07.22	23:47	12	23	66kV Pasakha feeder IV	Malbase Ss		IEF 50N_trip, 86 oprd, general trip			IL1=809.15/ 14.74deg, IL2=1657.8kA/17.40deg, IL3=208.51A/33.29deg, IL4=809.15A/ 14.74 deg
##	28.07.22	11:38	28.07.22	23:47	12		66kV Bus Coupler	Malbase Ss		IEF 50N_trip, 86 oprd, general trip, IEF_50_trip			IL1=648.57A/-113.40deg,IL2=12461.26A/-131.23deg,IL3=236.83A/98.24deg,IL4=12947.79A/-131.36deg
##	28.07.22	11:38					66kV pling feeder	Malbase Ss	O/C	Trip phase N, Earth Fault 1, Trip IN1>2			IL1= 8.797A, IL2= 9.697kA, IL3= 3.560kA, IL4= 9.690kA, The feeder still under breakdown due to 400kV Tala feeder I conductor got snapped and touched on transmission line of said feeder.
(B) 220/66/11 kV Singhigaon Substation													
1	17.07.22	03:32	17.07.22	03:43	0	0.097	220kV Singhi-Samtse Feeder	Singyegaon ss					couldnt download fault due to Digsi software communication problem.
##	28.07.22	23:39	28.07.22	23:44	0	4	66kV E/Concast feeder	Singyegaon ss					IL1=113.04kA, IL2= 58.93kA, IL3= 95.53kA
(B) 66/33/11 kV Phuntsholing Substation													
1	03.07.2022	17:19	03.07.2022	17:26	0	-3.70	66kV Chukha-Pling feeder	66kV Chukha-Pling fdr		DTTN OPTD. 1366db	Tripped at both end		At 17:19hrs 66kV Chukha-Pling feeder got tripped from both end. At 17:26hrs normalized the above feeder after getting clearance from BPSO with charging code 1652.
##	12.07.2022	06:30	12.07.2022	06:34	0	1.15	10MVA Voltamps TRF (66/33kV)	10MVA Voltamps TRF (66/33kV)	Tripped		Substation		10 MVA Transformer and 33kV Incomer II got tripped due to fault on 33kV fdr IV,Serma Bonikha.
##	14.07.2022	17:09	14.07.2022	17:24	0	-3.27	66kV Chukha-Pling feeder and 66kV Pling-Gomtu feeder	Black out at Pling ss	Tripped at their end	Nill	Tripped at their end		66kV Chukha-Pling and 66kV Pling-Gomtu feeder got tripped at their end; no breaker operation at our end. At 17:24hrs normalized 66kV Chukha-Pling feeder from Chukha and at 17:27hrs normalized 66kV Gomtu feeder from Gomtu end.
##	15.07.2022	15:42	15.07.2022	15:44	0	1.93	10MVA Voltamps TRF (66/33kV)	10MVA Voltamps TRF (66/33kV)	Tripped	Nill	Substation		10 MVA Transformer and 33kV Incomer II got tripped due to fault on 33kV fdr IV,Serma Bonikha.
(D) 66/33/11 kV Gedu Substation													
1	03.07.2022	17:20	03.07.2022	17:30	0	1.72	66kV Gedu- Chukha	Blackout	Bad weather		Line segment		66kV supply failed from CHP. At 17:27hrs 66kV supply charged from Phuntsholing Substation
	06.07.2022	9:02	06.07.2022	9:45	0	1.37	66/11kV 5MVA Tr: 1	Nil	Tighten transformer NCT		Substation		Work permit no 78 issued to Substation Head for NCT tightening work
2	16.07.2022	18:58	16.07.2022	19:10	0	1.69	66kV Gedu-Chukha	Blackout			Line segment		66kV supply failed from CHP. At 19:10hrs 66kV supply restored from Chukha
3	31.07.2022	9:12	31.07.2022	9:27	0	1.5	66kV Gedu Phuntsholing	Nil	Emergency shutdown at Phuntsholing end		Line segment		Emergency shutdown taken at Phuntsholing substation to rectify the hissing sound from line isolator

(I) 66/33/11 kV Gomtu Substation													
1	11.07.2022	17:30	12.07.2022	10:50	17	0.01	66/33kV 5 MVA Transformer	Nil	over current	O/C with IDMT highset trip and trip relay 86	Gomtu ss	Fault	Punctured bus insulator
2	14.07.2022	17:09	14.07.2022	17:29	0	-4.824	66kV Dhamdhum feeder	Gomtu Substation	Transient fault	Distance Relay Operated	Line segment	Transient fault	Charged the feeder as per the instruction given by BPSO
2	14.07.2022	17:09	14.07.2022	17:27	0	2.66	66kV Phuentsholing feeder	Gomtu Substation	Earth fault	IDMT EF operated	Line segment	Transient fault	Charged the feeder as per the instruction given by BPSO
3	16.07.2022	19:01	16.07.2022	19:11	0	-5.362	66kV Dhamdhum feeder	Gomtu Substation	Tripped from Dhamdhum end	Nil	Line segment	Transient fault	Tripped from Dhamdhum end and supply resumed at 19:11hrs
3	16.07.2022	19:01	16.07.2022	19:14	0	3.61	66kV Phuentsholing feeder	Phuentsholing substation	Earth fault	E/F 67NA	Line segment	Transient fault	Tripped on earthfault and charged the line as requested by BPSO and charge withstand
4	19.07.2022	09:15	19.07.2022	10:55	1	2.82	66kV Phuentsholing feeder	Nil	Spark on B phase CB terminal	Nil	Gomtu substation	Emergency Shutdown	Availed emergency shutdown by Substation Head against Work Permit No. 374, opening code 4868 and closing code 1751 from BPSO
4	28.07.2022	18:56	28.07.2022	18:56	0	-7.634	66kV Dhamdhum feeder	Nil	B-Phase fault	Distance Relay Operated & A/R Operated, General trip, Zone One trip, Z-Com trip & B-Phase fault	Line segment	Transient fault	Auto recloser operated and charged from Dhamdhum end at 19:09hrs of date 28.07.2022 against closing code 1854 from BPSO
(J) 220/66/33 kV Dhamdum Substation													
1	14.7.2022	17:10	14.7.2022	17:29	0	5.09	66kv Gomtu fdr	Gomtu	Heavy thundering, lightning, windy and raining at Gomtu area	General trip, Zone 2 trip, Y phase fault, vt fuse fail	Heavy thundering, lightning, windy and raining at Gomtu area	line fault	Feeder test after stopping the weather at gomtu area and consult with BPSO for test charging
2	20.07.2022	18:16	20.07.2022	19:05	0	7.41	66kv Gomtu fdr	Gomtu	thundering, lightning, windy and raining at Samtse	General trip, Zone 1 trip, Y phase fault	NA	line fault	REPA70: General trip Zone 1, O/C on YP Abs Dist: 2.39 Rel. Dist: 15.92% Fault loop - L2N + Charged the feeder based upon the charging code 1854, BPSO T/phn, moreover after normalization of rain fall

Sl. No.	Date of Tripping	Time of outages	Date of Normalization	Time of fault was cleared	Duration of Outages (Hrs)	MW before outage (MW)	Feeder Name	Name of the Substation/lines affected by the fault	Reasons of fault	Relay operations	Exact location of fault [Line segment/ Substation]	Type of outages	Remarks
(A) 66KV Chumdo switching station													
1	01.07.2022	13:18hrs	01.07.2022	20:43hrs		(-) 11.15MW	66KV Chukha Feeder	Paro substation	U fault	Due to E/F 1A, 113, 6A, 20, 151, 8A, 2C, 117, 3A	66KV Transmission Line	Trip	
2						1.62MW	66KV Pangbisa Feeder	Pangbisa substation	Transient fault	3Ph and General trip	66KV Transmission Line	Trip	
3				20:23hrs		(-) 1.99MW	66KV Jemina Feeder	Paro and Pangbisa	Transient fault	3Ph and General trip	66KV Transmission Line	Trip	Kept feeder open as per BPSO
4	26.07.2022	10:00hrs	26.07.2022	13:31hrs	9hrs	(-) 2.15MW	66KV Jemina Feeder	Fed from 66KV Chukha Feeder	S/down	CB open, Line & Bus isolator open, E switch closed	Jemina substation	S/down	S/down by CNPD for checking the operation of Line and Bus isolators electrically as SCADA installation is in process at Jemina
(B) 66/33kV Watsa Substation													
1	07-01-2022	19:33hrs	07-01-2022	19:45hrs		8.20MW	66KV IC	Fdr. I and II	66KV IC tripped at chukha end	66KV IC tripped at chukha end	66KV IC tripped at chukha end	Tripped	WTI tripped and reset the temperature to 75 with consultation with Mr. Head SMD, and the line charged
(C) 66/33kV Olakha Substation													
1	21-07-2022	17:55	21-07-2022	17:35	0	8.19	66/33kV 20MVA Transformer I	Only 66/33kV 20MVA Transformer I was affected	Over current and earth fault	Earth Fault Over Current Operated	Line Segment	Taken Shut down	The 66kV Olakha Changjiji line was taken shut down by Manager Chumdo Operation of TMD, with work permit no. 2507 and also with the shutdown approval from BPSO. Changed for removal of flag pole installed at the line near Dago for Jungo area with breaker opening code 5820. The line was charged after completion of the work with closing code 1617 at 17:35hrs and stood normal

	(D) 66/33/11kV Lobeysa Substation												
	66kV LSA - Gewathang feeder												
1	07.07.2022	06:15hrs	07.07.2022	06:20hrs	0	-20.620	66kV LSA - Gewathang feeder	66/33/11kV Lobeysa substation		NA			66kV LSA - Gewathang feeder tripped at 06:15hrs and supply resumed at 06:20hrs and at the time of tripping No breaker or relay operated at Lobeysa end.
2	08.07.2022	19:49hrs	08.07.2022	19:55hrs	0	-17.478	66kV LSA - Gewathang feeder	66/33/11kV Lobeysa substation		NA			66kV LSA - Gewathang feeder tripped at 19:49hrs informed to BPSO and line charged at 19:50hrs from Gewathang ss and line extended to Dechula at 19:55hrs.
3	09.07.2022	02:08hrs	09.07.2022	02:18hrs	0	-18.720	66kV LSA - Gewathang feeder	66/33/11kV Lobeysa substation		Dist relay operated(Zone 3 oprd)			66kV LSA - Gewathang feeder tripped at 02:08hrs informed to BPSO and line charged at 02:09hrs from Gewathang ss and line extended to Dechula at 02:18hrs.
4	09.07.2022	12:23hrs	09.07.2022	12:24hrs	0	-20.249	66kV LSA - Gewathang feeder	66/33/11kV Lobeysa substation		Dist relay operated(Zone 3 oprd)			66kV LSA - Gewathang feeder tripped at 12:23hrs informed to BPSO and line charged at 12:24hrs from Gewathang ss and line extended to Dechula at 12:30hrs.
5	20.07.2022	19:53hrs	20.07.2022	19:58hrs	0	-21.050	66kV LSA - Gewathang feeder	66/33/11kV Lobeysa substation		Dist relay operated(Trip D &C Zone 3 oprd, IA-119.9A,IB-015.1,IC-009.1A)			66kV LSA - Gewathang feeder tripped at 19:53hrs informed to BPSO and line charged at 19:58hrs from Gewathang ss and line extended to Dechula at 20:03hrs.
					0								
	66kV LSA - Dechula feeder												
1	07.07.2022	06:15hrs	07.07.2022	06:20hrs	0	19.470	66kV LSA - Dechula feeder			NA			66kV LSA - Dechula feeder tripped at 06:15hrs and supply resumed at 06:20hrs and at the time of tripping No breaker or relay operated at Lobeysa end.
2	08.07.2022	19:49hrs	08.07.2022	19:55hrs	0	19.640	66kV LSA - Dechula feeder			NA			66kV LSA - Dechula feeder tripped at 19:49hrs informed to BPSO and line charged at 19:50hrs from Gewathang ss and line extended to Dechula at 19:55hrs.
3	09.07.2022	02:08hrs	09.07.2022	02:18hrs	0	19.120	66kV LSA - Dechula feeder			NA			66kV LSA -Dechula feeder tripped at 02:13hrs informed to BPSO and line charged at 02:15hrs from Gewathang ss and line extended to Dechula at 02:23hrs.
4	09.07.2022	12:23hrs	09.07.2022	12:24hrs	0	-20.249	66kV LSA - Dechula feeder			NA			66kV LSA - Dechula feeder tripped at 12:23hrs informed to BPSO and line charged at 12:24hrs from Gewathang ss and line extended to Dechula at 12:30hrs.
5	20.07.2022	00:42hrs	20.07.2022	00:51hrs	0	14.950	66kV LSA - Dechula feeder			Dist Trip D & Dist Trip C,Zone 3 oprd			Supply was resumed from Gewathang ss at 00:47hrs 66kV LSA - Dechula feeder tripped at 00:42hrs informed to BPSO and line extended at 00:51hrs
6	20.07.2022	12:42hrs	20.07.2022	12:51hrs	0	14.950	66kV LSA - Dechula feeder			Dist Trip D & Dist Trip C,Zone 3 oprd			Supply was resumed from Gewathang ss at 00:47hrs 66kV LSA - Dechula feeder tripped at 00:42hrs informed to BPSO and line extended at 00:51hrs
7	21.07.2022	17:16hrs	21.07.2022	17:20hrs	0	17.200	66kV LSA - Dechula feeder			Dist Trip D & Dist Trip C,Zone 3 oprd			66kV LSA - Dechula feeder tripped at 17:16hrs informed to BPSOand supply was extended from Gewathang at 17:17hrs and line extended at 17:20hrs towards Dechula
	(E) 66/33/11 kV Pare Substation												
	(F) 66/33/11kV Jemina Substation								Nil				
66 kV side Tripping													
1	01.07.2022	18:49	01.07.2022	19:05	0	3.870	66 kV Chuzagang	Black out	Earth fault	Non directional O/C operated	Line Segment	Transient	
2	01.07.2022	18:59	01.07.2022	19:26	0	1.945	66 kV Chuzagang	Black out	Earth fault	Non directional O/C operated	Line Segment	Transient	Whether lightning at Chuzagang and as per the BPSO personnel
	(G) 66/33/11kV Deothang/Jaling substation												
1	01.07.2022	18:49hrs	01.07.2022	18:57hrs	0	-21.45	66kV JC	All while ss	Supply failed from source				
2	20.07.2022	09:42hrs	20.07.2022	09:48hrs	0	21.29	66kV JC	All while ss	Supply failed from source				
	(H) 66/11kV Hau Substation												
1	01.07.2022	18:04	01.07.2022	18:08	0	1.88	All	unknown	O/C	punakha	Tripped from Punakha end		
2	14.07.2022	00:04	14.07.2022	00:09	0	0.66	All	unknown	O/C	punakha	Tripped from Punakha end		
3	14.07.2022	04:17	14.07.2022	04:23	0	0.56	All	unknown	O/C	punakha	Tripped from Punakha end		
4	15.07.2022	03:57	15.07.2022	03:10	1hr	0.63	All	unknown	O/C	punakha	Tripped from Punakha end		
5	18.07.2022	03:25	18.07.2022	04:22	0	0.53	All	unknown	O/C	punakha	Tripped from Punakha end		

(f) 220kV Substation Semtokha

1	01-07-2022	18:39hrs	01-07-2022	18:58hrs			50/33kV 20MVA Transformer	Semtokha Substation	REF Trip	REF Trip	Transient fault	Transient	
2	01-07-2022	18:50hrs	01-07-2022	18:57hrs		21.37	66kv Semtokha- Dechenchholing Line	Dechenchholing and Dangi Substation	Distance protection Optd., Zone 1, Trip R	Distance protection Optd., Zone 1, Trip R	Transient fault	Transient	
3	07-07-2022	00:13hrs	07-07-2022	00:25hrs		40.01	66kv Semtokha-Dochula Line	Dochula s/s	Directional earth fault protection operated	OC/EF Optd, IN>1 trip	Transient fault		
4	07-07-2022	00:15hrs	07-07-2022	00:25hrs		40.01	66kv Semtokha- Dechenchholing Line	Dechenchholing and Dangi Substation	Broken Conductor	Distance protection Optd., BBC Trip	Transient fault		
5	08-07-2022	19:09hrs	08-07-2022	19:25hrs		31.90	66kv Semtokha-Dochula Line	Dochula s/s	Y & Bph OC Trip	Backup OC/EF relay optd., Y&Bph I>2 Trip	Transient fault		
6	09-07-2022	02:18hrs	09-07-2022	02:28hrs		47.12	66kv Semtokha-Dochula Line	Dochula s/s	Y & Bph OC Trip	Backup OC/EF relay optd., Y&Bph I>2 Trip	Transient fault		
7	09-07-2022	12:21hrs	09-07-2022	12:29hrs		31.91	66kv Semtokha-Dochula Line	Dochula s/s	Y & Bph OC Trip	Backup OC/EF relay optd., Y&Bph I>2 Trip	Transient fault		
8	20-07-2022	00:44hrs	20-07-2022	00:58hrs			66kv Semtokha-Dochula Line	Dochula s/s	Y & Bph OC Trip	Backup OC/EF relay optd., Y&Bph I>2 Trip ; fault Current Ir=127.9A, Iy=1.765kA, Ib=1.574kA, In=17.48	Transient fault		
9	20-07-2022	00:44hrs	20-07-2022	00:55hrs			66kv Semtokha- Dechenchholing Line	Dechenchholing and Dangi Substation	Broken Conductor	Tripped on Broken Conductor, Fault Current Ir=131.1A, Iy=69.8A, Ib=84.3A			
10	30-07-2022	19:03hrs	30-07-2022	19:08hrs			66kv Semtokha-Dochula Line	Dochula s/s	Y & Bph OC Trip	Backup OC/EF relay optd., Y&Bph I>2 Trip , fault Current Ir=[illegible], Iy=1.716kA, Ib=1.568kA, In=0.00	Transient fault		
11	31-07-2022	17:18hrs	31-07-2022	17:33hrs			66kv Semtokha-Dochula Line	Dochula s/s	Y & Bph OC Trip	Backup OC/EF relay optd., Y&Bph I>2 Trip , fault Current Ir=111.7A, Iy=1.701kA, Ib=1.693kA, In=0.00	Transient fault		

f)66/33/11kV Pangbesa substation

1	01.07.2022	18.54Hrs	01.07.2022	18.59Hrs	0		Has Line	Has	Shutdown	Tripped on E/F & O/C	Pas-Has	Transient	Replacement of HT Fuse
2	14.07.2022	00:44Hrs	14.07.2022	1:00Hrs	0	0.7	Has Line	Has	Tripping	Dir O/C	Pas-Has	Transient	Cloudy
3	14.07.2022	3:58Hrs	14.07.2022	4:13Hrs	0	0.7	Has Line	Has	Tripping	Dir O/C	Pas-Has	Transient	Cloudy
4	14.07.2022	4:18Hrs	14.07.2022	4:22Hrs	0		Has Line	Has	Tripping	Dir O/C	Pas-Has	Transient	Cloudy
5	15.07.2022	1:56Hrs	15.07.2022	2:10Hrs	0		Has Line	Has	Tripping	Dir O/C	Pas-Has	Transient	Cloudy, Charged did not again
6	15.07.2022	2:10Hrs	15.07.2022	2:17Hrs	0		Has Line	Has	Tripping	Dir O/C	Pas-Has	Transient	Cloudy, Charged again did not stand
7	15.07.2022	2:19Hrs	15.07.2022	2:39Hrs	0		Has Line	Has	Tripping	Dir O/C	Pas-Has	Transient	Cloudy, Charged again did not stand
8	15.07.2022	2:39Hrs	15.07.2022	2:49Hrs	0		Has Line	Has	Tripping	Dir O/C	Pas-Has	Transient	Cloudy, Charged again did not stand
9	15.07.2022	2:56Hrs	15.07.2022	3:08Hrs	0		Has Line	Has	Tripping	Dir O/C	Pas-Has	Transient	Cloudy, Charged Fault from Has 11kV fdr
10	18.07.2022	3:58Hrs	18.07.2022	4:07Hrs	0		Has Line	Has	Tripping	Dir O/C	Pas-Has	Transient	Cloudy

	(L) 66/33kV Dunji Substation													
1	01.07.2022	1821 hrs	01.07.2022	1951 hrs	0	-4	66 kV Incoming Line	Whole Substation	Trip	NA			Transmission Line tripped from Semtokha Substation (B Phase Tripped)
2	07.07.2022	0615 hrs	07.07.2022	0621 hrs	0	-4.13	66 kV Incoming Line	Whole Substation	Trip	NA			Transmission Line tripped from Semtokha Substation
3	08.07.2022	1113 hrs	08.07.2022	1114 hrs	0	-4.02	66 kV Incoming Line	Whole Substation	Trip	NA			Transmission Line tripped from Dechenchiling Substation due to installation of starter
4	20.07.2022	0044 hrs	20.07.2022	0048 hrs	0	-4.05	66 kV Incoming Line	Whole Substation	Trip	NA			Transmission Line tripped from Semtokha Substation
	(M) 66/11kV Dechula Substation													
1	07-07-2022	08:11	07-07-2022	08:23		-11.83	66kV Semtokha	Semtokha - Dechula	Transit fault	under voltage and 86 relay	Semtokha	Temporary	DHI	
2	07-07-2022	08:11	07-07-2022	08:23		-10.24	66kV Lobeysa	Lobeysa - Dechula	Transit fault	under voltage and 86 relay	Lobeysa	Temporary	DHI	
3	08-07-2022	19:08	08-07-2022	19:17		-11.10	66kV Semtokha	Semtokha - Dechula	Transit fault	under voltage and 86 relay	Semtokha	Temporary	DHI	
4	08-07-2022	19:08	08-07-2022	20:00		-29.53	66kV Lobeysa	Lobeysa - Dechula	Transit fault	under voltage and 86 relay	Lobeysa	Temporary	DHI	
5	08-07-2022	02:50	08-07-2022	02:55		-11.92	66kV Semtokha	Semtokha - Dechula	Transit fault	under voltage and 86 relay	Semtokha	Temporary	DHI	
6	08-07-2022	02:50	08-07-2022	02:57		-10.54	66kV Lobeysa	Lobeysa - Dechula	Transit fault	under voltage and 86 relay	Lobeysa	Temporary	DHI	
7	09-07-2022	12:23	09-07-2022	12:27		-11.88	66kV Semtokha	Semtokha - Dechula	Transit fault	under voltage and 86 relay	Semtokha	Temporary	DHI	
8	09-07-2022	12:23	09-07-2022	12:35		-10.17	66kV Lobeysa	Lobeysa - Dechula	Transit fault	under voltage and 86 relay	Lobeysa	Temporary	DHI	
9	20-07-2022	0:43	20-07-2022	0:53		-29.67	66kV Lobeysa	Lobeysa - Dechula	Transit fault	under voltage and 86 relay	Lobeysa	Temporary	DHI	
10	20-07-2022	0:43	20-07-2022	0:59		-11.42	66kV Semtokha	Semtokha - Dechula	Transit fault	under voltage and 86 relay	Semtokha	Temporary	DHI	
11	20-07-2022	19:53	20-07-2022	20:06		-29.96	66kV Lobeysa	Lobeysa - Dechula	Transit fault	under voltage and 86 relay	Lobeysa	Temporary	DHI	
12	20-07-2022	19:53	20-07-2022	19:59		-11.61	66kV Semtokha	Semtokha - Dechula	Transit fault	under voltage and 86 relay	Semtokha	Temporary	DHI	
13	21-07-2022	17:16	21-07-2022	17:22		-10.28	66kV Lobeysa	Lobeysa - Dechula	Transit fault	under voltage and 86 relay	Lobeysa	Temporary	DHI	
14	21-07-2022	17:16	21-07-2022	17:32		-11.84	66kV Semtokha	Semtokha - Dechula	Transit fault	under voltage and 86 relay	Semtokha	Temporary	DHI	

August 2022

Sl No.	Date of Tripping	Time of outages	Date of Normalisation	Time of fault was cleared	Duration of Outages (Hrs)	MW before outage (MW)	Feeder Name	Name of the Substation/lines affected by the fault	Reasons of fault	Relay operations	Exact location of fault [Line segment/ Substation]	Type of outages	Remarks
66kV & Above													
(A) 400/220/66/11 kV Malbase Substation													
1	01.08.2022	19:07	01.08.2022	21:05	1	139	200MVA ICT	Malbase Ss	PRD OPTD	PRD Y- Phase, 86 OPTD			IL1=276.36,IL2=239.4A,IL3=231.3
2	08.08.2022	07:23	08.08.2022	07:29	6	26	66kV Paro kha I	Malbase Ss	O/C on R-phase	86 OPTD, General trip IEF-50N trip	line		IL1=1025.53A<-13.31, I2=219.37A<-130.54, I3=505.61A<151.16, IL4=1176.84a<164.00
3	08.08.2022	07:23	08.08.2022	07:50	0	26	66kV Paro kha II	Malbase Ss	O/C on Y-phase	86 OPTD, General trip IEF-50N trip	line		IL1=.20A<132.92, I2=742.124<-55.73, I3=228.20A<-106.15
4	08.08.2022	07:23	08.08.2022	07:30	6	5.6	66kV Paro kha IV	Malbase Ss	O/C on R-phase	86 OPTD, General trip IEF-50N trip	line		IL1=2315.03A<-50.57, I2=293.37A<-90.58,IL3=180.51A<30.88
5	18.08.2022	14:57	18.08.2022	15:17	0	22	50/63 MVA Transformer I	Malbase Ss		86 OPTD,LBB-Trip,general Trip			IL1=110.88A<-114.2 IL2=78.28A<174.65,IL3=313.86A<-62.28
6	18.08.2022	14:57	18.08.2022	01:12	10	23	50/63 MVA Transformer III	Malbase Ss		OLTC BUCH Trip,DIFF Trip,86 OPTD			IL1=140.56A,119.04,IL2=104.47A,166.29,IL3=109.80<120.21
7	18.08.2022	14:57	20.08.2022	16:09	194	59.2	220kV Malbase- Birpara ckt	Malbase Sub Birpara SS		Zone 1 trip, A8 OPTD	1.533KM		IL1=7.403KA, I2= 914.3A, I3=671.3A
8	18.08.2022	14:57	20.08.2022	17:12	194	70	220kv Malbase- Singhigaon ckt	Malbase Sub Birpara SS		Dis PickUp I1 ON, Loop L3 Ef	7Km		IL1=.06kA,IL2=0.01KA,IL3=7.76KA
9	18.08.2022	14:57	18.08.2022	15:17	0	22	66kV LV 606	Malbase Ss		51N START	S/S		R=171.26A<97.6, Y=182A<-130, B=310A<119, N=406.93A<127.99
10	19.08.2022	06:55	19.08.2022	06:50	0	64	200MVA ICT	Malbase Ss	Temporary fault	86 OPTD	S/S		IL1=.131A,IL2=.804A,IL3=.095A

11	19.08.2022	06:35	19.08.2022	07:51	1	11	220kV Malbase Samtse fdr	Malbase Ss Samtse	Temporary fault	87 OPTD	line		IL1=58.77kA<69.27,IL2=36.41kA<25=4,IL3=59.17A<107.2,IL4=53.52A<167.3
12	19.08.2022	06:35	19.08.2022	10:26	3	79	220kV Malbase Chukha fdr	Malbase Ss Chukha S/S	Short R phase,	87 OPTD	line		IL1=764.3A<249.9,IL2=223.4A<57.06<57.86,IL3=568A<58.75,IL4=52.52A<33.3
13	19.08.2022	06:35	19.08.2022	07:09	1	44	50/63 MVA Transformer I	Malbase Ss		86 OPTD,RBF OPTD	S/S		IL1=201A<249.8,IL2=20kA<41.03,IL3=203A<141.11,IL4=205A<173.51
14	19.08.2022	06:35	19.08.2022	07:12	0	42	66kV Pasakha feeder I	Malbase Ss	O/C, E/F	IOC-50 Trip,IEF50N Trip,General Trip,86 OPTD	line		IL1=54.74A<-48.83,IL2=316.74A<-120.62,IL3=5059.39A<74.71,IN=5157.57A<166.02
15	19.08.2022	06:35	19.08.2022	06:45	0			Malbase Ss	O/C, E/F	IEF 50N_trip, 86 optd, general trip, IEF_51_trip			IL1=64.02.49A<54.29,IL2=659.18A<128.62,IL3=6405.32A<109.52,IN=7519.73A<117.08
16	20.08.2022	01:45	20.08.2022	09:03	7	18.4	220kV Malbase Samtse fdr	Malbase Ss Samtse	E/F	M1 Trip, R phase Trip,Zone 1 Trip, R/U Trip	49.3 KM		IL1=184.6A,IL2=1502A,IL3=162.2A,IN=1286A
17	21.08.2022	05:12	21.08.2022	05:42	0	17	220kV Malbase Samtse fdr	Malbase Ss Samtse	O/C on R phase and Y phase	M1 Trip, Zone 1 Trip.			IL1=6003A,IL2=6477A,IL=171.4A,IN=5197A
18	21.08.2022	05:33	21.08.2022	05:40	0	44	200MVA ICT	Malbase Ss	Temporary fault	87 OPTD			IL1=199.3A<38.90,IL2=185.6A<-64.34,IL3=158.1A<-155.3
19	21.08.2022	11:09				41	50/63 MVA Transformer I	Malbase Ss	LBB & PRD operated did not charged, kept under shutdown.	LBB Trip, 86OPTD	S/S		IL1=309.54A<-3.17,IL2=308.11A<54.48,IL3=314.28A<110.06
20	21.08.2022	11:09	21.08.2022	14:17	3		66kV Bus Coupler	Malbase Ss	O/C on R,Y& B Phase	51 Trip, 86OPTD	S/S		IL1=1762.53A,IL2=1743.75A<-119.79,IL3=1772.41<130.93,IL4=1753.6<90.18
21	21.08.2022	11:09	21.08.2022	14:19	3	50	66kV pasakha IV	Malbase Ss	O/C	51 Trip, 86OPTD	line		IL1=796.4A,IL2=789.53A<-120.42,IL3=790.03A<120.11
22	21.08.2022	11:09	21.08.2022	14:18	3	44	66kV pasakha II	Malbase Ss	O/C	51 Trip, 86OPTD	line		IL1=224<.00,IL2=577.30A<-75.77,IL3=803.78A<-103.18
23	21.08.2022	18:10	21.08.2022	18:16	0	24	200MVA ICT	Malbase Ss	Temporary fault	86 OPTD	-		IL1=.87.56<192.4,IL2=.847A<72.17,IL3=.357A<-134.5
24	21.08.2022	11:29	21.08.2022	13:21	2	13.65	66kV malbase- Phuntsholing	Malbase Ss-Phuntsholing S/S	O/C	O/C Trip I> LE/T1	line		IA=510.4A,IB=505A,IC=503.2A,IN=4467A
25	21.08.2022	18:10	21.08.2022	18:52	0	31	220kV Malbase Chukha fdr	Malbase Ss- Chukha S/S	Temporary fault	86 optd>	line		IL1=80.05A<149.1,IL2=63.89A<21.98,IL3=67.44A<236,IL4=508.7A<39.5
26	21.08.2022	18:10	21.08.2022	18:50	0	15	66kV Pasakha IV	Malbase Ss	O/C	IEF 50N ON trip,General trip,86trip	line		IL1=2345.55A<-52.88deg,IL2=372.65A<73.8deg,IL3=233.53A<1.47deg
27	21.08.2022	18:10	21.08.2022	18:19	0	23	50/63 MVA Transformer III	Malbase Ss	Temporary fault	RBF optd,Differential optd.	S/S		IL1=26A<11.33deg,IL2=310.14A<120deg,IL3=303.78A<118.97deg
28	21.08.2022	18:10	21.08.2022	18:23	0	13	220kV Malbase Samtse fdr	Malbase Ss-Samtse	Temporary fault	R/U Trip	line		IL1=52.70A<71.05deg,IL2=32.99A<-163.8deg,IL3=44.16A<139.3deg,IL4=51.50A<118.8deg
29	23.08.2022	14:12	23.08.2022	14:16	0	31	50/63 MVA Transformer III	Malbase Ss	Temporary fault	86 optd,Differential optd.	S/S		IL1=181.6A<6.41deg,IL2=72.46A<30.01deg,IL3=103.60A<81.95deg,IL4=303.29A<20.16deg
30	23.08.2022	14:12	23.08.2022	14:47	0	3	220kV Malbase-Samtse fdr	Malbase Ss-Samtse	O/C on y phase and with E/F	Main 1protection trip+O/C relay trip+Loop L2-N	line		IL1=92.88A<150.7deg,IL2=3773A<160.0deg,IL3=33.3A<13.9deg,IL4=3603A<161.5deg
31	23.08.2022	14:40	23.08.2022	16:18	1	7	220kV Malbase-Samtse fdr	Malbase Ss-Samtse	O/C on Y & B phase and with E/F	General trip+Main-1 trip	line		IL1=56.29A<123.8deg,IL2=4358A<171.5deg,IL3=4073A<34.8deg,IL4=3153A<102.6deg
32	26.08.2022	18:35	26.08.2022	18:47	0	39	50/63 MVA Transformer III	Malbase Ss	Temporary fault	86OPTD, 027 Trip, Diff Trip.	S/S		IL1=40.63A<59.53 deg, IL2=364.11A<-52.57 deg, IL3=370.86A<-170.42 deg, IL4=300.45A<-90.03 deg
33	26.08.2022	18:35	27.08.2022	14:47	20	26.08	220kV Malbase- Birpara fdr	Malbase S/S Birpara SS	Birpara line LA got punctured.	Phase ABC, Distance zone 1 tripped, AR Lockout , Fault location= 509.3m.	line		IA= 772.5A, IB= 659.9A, IC= 7.44TkA
34					0								
35					0								

(B)220/66/11 kV Singhigaon Substation													
1	17.07.22	03.32	17.07.22	03.42	0	0.097	220kV Singhi-Lamtse Feeder	Singhigaon ss					couldnt download fault due to Digsi software communication problem.
2	18.07.22	13.00	18.07.22	13.56	1	0.01	11kV Feeder 1	Singhigaon ss					[illegible]
3	18.07.22	17.59	18.07.22	20.35	2	2.226	11kV Feeder II	Singhigaon ss					[illegible]
4	19.07.22	10.40	19.07.22	10.45	0	0.13	11kV Feeder 1	Singhigaon ss		Transit Fault			[illegible]
5	23.07.22	16.59	23.07.22	17.31	0	0.122	11kV Feeder 1	Singhigaon ss					[illegible]
6	24.07.22	09.09	24.07.22	09.10	0	0.057	11kV Feeder I	Singhigaon ss	o/c & E/F,REF Trip, General trip				[illegible]
7	26.07.22	20.50	26.07.22	21.11	0	0.963	11kV feeder II	Singhigaon ss		Tripped on O/C Y&B Phase			[illegible]
8	28.07.22	22.39	28.07.22	22.44	0	4	66kV B/Coronet feeder	Singhigaon ss					[illegible]
(B)66/33/11 kV Phuentsholing Substation													
1	13.08.2022	18.38	13.08.2022	18.40	0	4.77	66kV Chukha-Pling feeder	Black out at Pling ss			Tripped at chukha end		At 18:38hrs 66kV Chukha-Pling feeder got tripped from chukha end and 66kV Pling-Gomtu feeder got tripped at our end causing black out at Pling. At 18:40hrs normalized the 66kV Chukha-Pling from Chukha end and at 18:45hrs normalized 66kV Pling-Gomtu feeder after getting clearance from BPSO.
2	13.08.2022	18.38	13.08.2022	18.45	0	1.94	66kV Pling-Gomtu fdr	Black out at Pling ss	Overcurrent	Ia- 995.7A, Ib-1.036kA,Ic-51.71A,VAB-4.560kV,VBC-54.00kV,VCA-57.31kV, INN-11.71A,IND-12.38A	Tripped at our end		
3	14.08.2022		14.08.2022	14.24		Idle charge	66kV Pling-Malbase fdr	66kV Pling-Malbase fdr					At 14:24hrs charged 66kV Pling-Malbase feeder which was under idle charge condition with closing code 111 from BPSO. At 18:59hrs opened CB of above fdr with opening code 0943 from BPSO and said feeder kept under idle charged condition.
4	14.08.2022	14.28	14.08.2022	18.56	4	4.57	66kV Pling-Gomtu fdr	66kV Pling-Gomtu fdr	Shutdown	Nil	Line		At 14:28hrs 66kV Pling-Gomtu feeder taken shut down by TMD/Pling against work permit no 014 with opening code 0141 from BPSO for RoW clearing between location PP# 2 to PP# 3. At 18:56hrs normalized with closing code 114 from BPSO.
5	18.08.2022	15.25	18.08.2022	15.32	0	3.97	66kV Chukha-Pling feeder	Black out at Pling ss	Tripped at their end	Nil	Tripped at their end		Tripped at Chukha end.
6	18.08.2022	15.25	18.08.2022	15.45	0	3.16	66kV Pling-Gomtu fdr	Black out at Pling ss	Earthfault	Ie=-, Ia- 34.61A, Ib-1.036kA,Ic-1.092kA,VAB-68.21kV,VBC-5.143kV,VCA-64.53kV, INN-635.8A,IND-635.1A, Van-21.27kV, Vbn-17.13kV, Vcn-13.89kV	Substation		Tripped at our end. At 15:45hrs test charged after getting clearance from BPSO and stood normal.
7	18.08.2022		18.08.2022	15.28		Idle charge	66kV Pling-Malbase fdr	66kV Pling-Malbase fdr					At 15:28hrs charged 66kV Pling-Malbase feeder which was under idle charge condition with closing code 134 from BPSO, since 66kV Chukha-Pling supply fail from Chukha end and 66kV Pling-Gomtu tripped at our end. At 15:57hrs opened CB of above fdr with opening code 0954 from BPSO and said feeder kept under idle charged condition.
8	19.08.2022		19.08.2022	09.34		Idle charge	66kV Pling-Malbase fdr	66kV Pling-Malbase fdr					At 09:34hrs as per instruction from BPSO charged 66kV Pling-Malbase feeder which was under idle charge condition with closing code 174 from BPSO due to voltage fluctuation. On dated 21.08.2022 at 11:39hrs opened CB of 66kV Pling-Malbase feeder with opening code 0961 from BPSO and feeder kept under idle charged condition.
9	21.08.2022	11.09	21.08.2022	11.29	0	4.87	66kV Chukha-Pling feeder	66kV Chukha-Pling feeder		DTTN OPTD, 186&86			Test charged as per instruction from BPSO with charging code 186 but didn't withstand. Informed to BPSO. At 11:29hrs test charged with same charging code as per instruction from BPSO and stood normal.
10	21.08.2022	11.09	21.08.2022	11.16	0	4.97	66kV Pling-Gomtu fdr	66kV Pling-Gomtu fdr		operated relay 186 & 86			At 11:16hrs test charged as per instruction from BPSO with charging code 187 and stood normal.
11	21.08.2022		21.08.2022	15.24		Idle charge	66kV Pling-Malbase fdr	66kV Pling-Malbase fdr					At 15:24hrs as per instruction from BPSO charged 66kV Pling-Malbase feeder which was under idle charge condition with closing code 180 from BPSO. At 17:13hrs opened CB of 66kV Pling-Malbase feeder with opening code 0962 as per instruction from BPSO and feeder was put back to idle charged condition.
12	25.08.2022		25.08.2022	16.00		Idle charge	66kV Pling-Malbase fdr	66kV Pling-Malbase fdr					At 16:00hrs as per instruction from BPSO charged 66kV Pling-Malbase feeder which was under idle charge condition with closing code 190 from BPSO. At 18:11hrs opened CB of 66kV Pling-Malbase feeder with opening code 09[illegible] as per instruction from BPSO and feeder was put back to idle charged condition. The operation was carried out to build up the voltage.
13	26.08.2022		26.08.2022	09.51		Idle charge	66kV Pling-Malbase fdr	66kV Pling-Malbase fdr					At 09:51 66 kV Pling-Malbase feeder charged from our end with charging code 196 from BPSO due to high rise in winding temperature of 10/13MVA transformer II & III at Malbase end. At 17:31hrs opened CB of 66kV Pling-Malbase feeder with opening code 09[illegible] from BPSO and said feeder was put back to idle charged condition.

(D) 66/33/11 kV Gedu Substation													
1	13.08.2022	18:35	13.08.2022	18:40	0	1.3	66kV Gedu-Chukha Feeder.	Black out	Tripped from Chukha end.		Line segment		66kV supply restored from Chukha end
2	18.08.2022	15:36	18.08.2022	15:52	0	1.55	66kV Gedu-Chukha Feeder	Black out	Tripped from Chukha end.		Line segment		66kV supply restored from Chukha end
(E) 66/33/11 kV Gomtu Substation													
1	13.08.2022	18:35	13.08.2022	18:44	0	9.279	66kV Dhamdum feeder	Whole Gomtu	Grid failed	Nil	Chukha		tripped from Dhamdhum end
2	13.08.2022	18:35	13.08.2022	18:43	0	0.96	66kV Gomtu-Phuntsholing	Whole Gomtu	Grid failed	Nil	Chukha		Tripped from pling end
##	18.08.2022	15:35	18.08.2022	15:57	0	7.784	66kV Dhamdhum Line	Gomtu	Tripped	General tripped	Gomtu 33	Tripped	Supply charged as per the BPSO instruction.
(F) 220/66/33 kV Dhamdhum Substation													
1	10.08.2022	14:56	24.08.2022	18:02	3	3.16	Singaygaon	Dhamdum	heavy rain with wind	REL 670 trip	NA		Line tripped due to E/F on B0 faulty, Zone: 1(General trip) 400KV conductor snap and fall on 220KV line. So Fdr. Kept under shut down.
2	23.08.2022	14:33	23.08.2022	14:47	0	13.12	220kV Malbase feeder	Dhamdum	heavy rain with wind	REL 670 trip	NA		Feeder tripped due to, Zone 1(General trip)R,Y,B Fault and VT fuse fail but only Breaker trip from Malbase end
3	23.08.2022	14:48	23.08.2022	16:18	1	13.12	220kV Malbase feeder	Dhamdum	heavy rain with wind	REL 670 trip	NA		Feeder tripped from Malabase end.Relay indicated: Zone: 1(General trip)LR,Y,B Fault and VT fuse fail only
4	24.08.2022	15:15	25.08.2022	15:34	22	6.74	50/63mva Transformer II	Dhamdum	sunny	shut down	NA		50/63MVA transformer II taken emergency shut down due to abnormal sound produced from the Circuit breaker 8B against work permit No.1598. BPSO shutdown code no. 0965
5	13.08.2022	18:35	13.08.2022	18:44	0	9.24	Gomtu	_	Transient fault	REC670	NA	-	Tripped on O/C,Fault current value 1) L1 : 2.210A 2) L2: 2.424A 3) L3: 2.318A 4) Io: 0.001A
6	18.08.2022	15:43	18.08.2022	15:53	0	8.2	Gomtu	_	Transient fault	REC670	NA	-	Tripped on O/C,Fault current value(T & B0) 1) L1 = 0.294A 2) L2 =1.998A 3) L3 = 1.965A 4) Io: 0.001A
7	23.08.2022	14:03	23.08.2022	14:05	0	9.2	66kV Gomtu feeder	_	Transient fault	REL 670: General trip,Zone2 trip,Biphase fault	NA	-	Fault current value(BP) I1= Fault mag=16.2.15A, Fault angle=14.75deg I2= Fault mag= 42.19A,Fault angle=145.01deg, I3=1081.65A,Fault angle=43.65deg.
8	23.08.2022	14:02	23.08.2022	14:12	0	0	66kV Bus coupler	_	Transient fault	no relay operation	NA	-	Trip same time with Gomtu feeder.
	(B) 66/33kV Watsa Substation												
1	08-01-2022	9:46hrs	08-01-2022	10:06hrs		5.630MW	66/33KV, 8MVA transformer	Fdr. I and II	WTI tripped	WTI tripped	8MVA WTI tripped	Tripped	
2	08-02-2022	7:19hrs	08-02-2022	7:50hrs		5.900MW	66/33KV, 8MVA transformer	Fdr. I and II	WTI tripped	WTI tripped	8MVA WTI tripped	Tripped	
3	08-02-2022	10:49hrs	08-02-2022	11:15hrs		5.555MW	66/33KV, 8MVA transformer	Fdr. I and II	WTI tripped	WTI tripped	8MVA WTI tripped	Tripped	
4	08-03-2022	13:04hrs	08-03-2022	13:22hrs		5.304MW	66/33KV, 8MVA transformer	Fdr. I and II	WTI tripped	WTI tripped	8MVA WTI tripped	Tripped	
5	08-03-2022	19:40hrs	08-03-2022	19:52hrs		5.810MW	66/33KV, 8MVA transformer	Fdr. I and II	WTI tripped	WTI tripped	8MVA WTI tripped	Tripped	
6	08-05-2022	8:19hrs	08-05-2022	8:40hrs		5.380MW	66/33KV, 8MVA transformer	Fdr. I and II	WTI tripped	WTI tripped	8MVA WTI tripped	Tripped	
7	08-05-2022	9:39hrs	08-05-2022	10:02hrs		5.280MW	66/33KV, 8MVA transformer	Fdr. I and II	WTI tripped	WTI tripped	8MVA WTI tripped	Tripped	
8	08-05-2022	10:56hrs	08-05-2022	11:22hrs		5.280MW	66/33KV, 8MVA transformer	Fdr. I and II	WTI tripped	WTI tripped	8MVA WTI tripped	Tripped	
9	13/8/2022	17:50hrs	13/8/2022	17:56hrs		450MW	66KV SF6 breaker	Fdr. I and II	Earth fault on Y phase	Earth fault on Y phase	Fdr. II Chapcha	Tripped	Tree fallen on line
10	26/8/2022	8:45hrs	26/8/2022	8:50hrs		850MW	66KV SF6 breaker	Fdr. I and II	Earth Fault	EF relay operated	Fdr. I Chazhi	Tripped	Tree fallen on 33KV line as per ESD betkha. Line charged after opening faulty section as per ESD betkha.
11	28/8/2022	00:20hrs	28/8/2022	00:30hrs		245MW	66KV SF6 breaker	Fdr. I and II	OC and EF on ABC phase	OC and EF on ABC phase	Fdr. II Chapcha	Tripped	Test charged at 00:21hrs but line could not hold and breaker charged after opening isolator of fdr. II chapcha

	(C) 66/33kV Olakha Substation												
1	03-08-2022	2:33	03-08-2022	2:42	0	2.16	66/33kV 20MVA, Transformer I	All the 33kV was effected as the 20MVA Transformer I & II was tripped	Over current and earth fault	Earth Fault Over Current Operated	Distribution line	Transient fault	Reset the relays and test charged the feeders and stood normal.
2	03-08-2022	2:33	03-08-2022	2:42	0	2.16	66/33kV 20MVA, Transformer II	All the 33kV was effected as the 20MVA Transformer I & II was tripped	Over current and earth fault	Earth Fault Over Current Operated	Distribution line	Transient fault	Reset the relays and test charged the feeders and stood normal.
3	04-08-2022	5:01	04-08-2022	5:25	0	3.15	66/33kV 20MVA, Transformer I	All the 33kV was effected as the 20MVA Transformer I & II was tripped	Over current and earth fault	Earth Fault Over Current Operated	Distribution line	Transient fault	Reset the relays and test charged the feeders and stood normal.
4	04-08-2022	5:01	04-08-2022	5:25	0	3.15	66/33kV 20MVA, Transformer II	All the 33kV was effected as the 20MVA Transformer I & II was tripped	Over current and earth fault	Earth Fault Over Current Operated	Distribution line	Transient fault	Reset the relays and test charged the feeders and stood normal.
	(G) 66/33/11kV Dechencholing substation												
1	23.08.2022	09:46hrs	23.08.2022	09:50hrs	0	4.213	66KV Damji line	only Damji line	Tripped on Distance relay	Dist relay: IA-44.02A, IB-1.55KA, & IC 1.515KA, Fault resistance : 2.04W)	Fault location: 29.21KM Zone-1	Tripped	charged the life as per the BPSO charging code No.161 and hold the life normally
	(H) 66/11kV Haa Substation												
1	21.08.2022	15:35	21.08.2022	15:46	0	-0.91	66kV incomer	All	unknown	O/C	Pangbesa	The supply was normalized after resetting the relay.	
2	28.08.2022	06:06	28.08.2022	06:22	0	-0.83	66kV incomer	All	unknown	O/C & E/F	Pangbesa	The supply was normalized after resetting the relay.	
	(I) 220kV Substation Semtokha												
1	01-08-2022	16:20hrs	01-08-2022	16:23hrs		46.46	66kv Semtokha-Dechula Line	Dechula s/s	Y & Bph OC Trip	Backup OC/EF relay optd., Y&Bph I>2 Trip [illegible]		Transient	
2	04-08-2022	01:05hrs	04-08-2022	01:10hrs		46.48	66kv Semtokha-Dechula Line	Dechula s/s	Y & Bph OC Trip	Backup OC/EF relay optd., Y&Bph I>2 Trip [illegible]		Transient	
3	10-08-2022	07:50hrs	10-08-2022	07:54hrs		48.65	66kv Semtokha-Dechula Line	Dechula s/s	Y & Bph OC Trip	Backup OC/EF relay optd. Y&Bph I>2 Trip [illegible]		Transient	
4	21-08-2022	05:52hrs	21-08-2022	05:57hrs		47.31	66kv Semtokha-Dechula Line	Dechula s/s	Y & Bph OC Trip	Backup OC/EF relay optd. Y&Bph I>2 Trip [illegible]		Transient	
5	29-08-2022	18:34hrs	29-08-2022	18:40hrs		41.27	66kv Semtokha-Dechula Line	Dechula s/s	Y & Bph OC Trip	Backup OC/EF relay optd. Y&Bph I>2 Trip [illegible]		Transient	

	(K) 66/33kV Changidaphu Substation												
1	26-08-2022	18:34hrs	26-08-2022	18:50hrs		-5.05	66kV Changidaphu-Olakha Line	66kV Changidaphu-Olakha Line		Distance Protection, Zone 2 Yph Trip, R=120.162, Y=466.002, B=6.25 669		Transient	
	(L) 66/33kV Damji Substation												
1	23-08-2022	08:44 hrs	23-08-2022	08:50 hrs	0	-3.83	66 kV Incoming Line	Whole Substation	Trip	NA			Transmission Line tripped from Dechencholing Substation
	(M) 66/11kV Dechula Substation												
1	01-08-2022	16:21	01-08-2022	16:23		-32.06	66kV Semtokha	Semtokha - Dechula	Transit fault	under voltage and 86 relay	Semtokha	Temporary	1
2	01-08-2022	17:31	01-08-2022	16:31		-30.47	66kV Lobeysa	Lobeysa - Dechula	Transit fault	under voltage and 86 relay	Lobeysa	Temporary	1
3	04-08-2022	05:05	04-08-2022	05:07		-31.78	66kV Semtokha	Semtokha - Dechula	Transit fault	Under voltage and 86 relay	Semtokha	Temporary	1
4	04-08-2022	07:07	04-08-2022	07:08		-30.26	66kV Lobeysa	Lobeysa - Dechula	Transit fault	Under voltage and 86 relay	Lobeysa	Temporary	1
5	14-08-2022	7:21	14-08-22	7:25		-32.06	66kV Semtokha	Semtokha - Dechula	Transit fault	Under voltage and 86 relay	Semtokha	Temporary	1
6	14-08-2022	7:31	14-08-2022	7:37		-30.47	66kV Lobeysa	Lobeysa - Dechula	Transit fault	Under voltage and 86 relay	Lobeysa	Temporary	1
7	21-08-2022	07:32	21-08-2022	07:40		-32.89	66kV Semtokha	Semtokha - Dechula	Transit fault	Under voltage and 86 relay	Semtokha	Temporary	1
8	21-08-2022	07:32	21-08-2022	07:35		-30.28	66kV Lobeysa	Lobeysa - Dechula	Transit fault	Under voltage and 86 relay	Lobeysa	Temporary	1
9	28-08-2022	10:34	28-08-2022	10:40		-29.64	66kV Semtokha	Semtokha - Dechula	Transit fault	Under voltage and 86 relay	Semtokha	Temporary	1
10	28-08-2022	10:34	28-08-2022	10:42		-27.98	66kV Lobeysa	Lobeysa - Dechula	Transit fault	Under voltage and 86 relay	Lobeysa	Temporary	1

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Sl No.	Date of Tripping	Time of outages	Date of Normalization	Time of fault was cleared	Duration of Outages (Hrs)	MW before outage (MW)	Feeder Name	Name of the Substation/lines affected by the fault	Reasons of fault	Relay operations	Exact location of fault (Line segment/ Substation)	Type of outages	Remarks
66kV & Above													
(A) 400/220/66/11 kV Malbase Substation													
1	06-09-2022	00:08	06-09-2022	00:12	0	33	50 MVA transformer III	Malbase Substation	Tripping	86oprd, Diff Harm Blk			IL1= 85.52<167.78deg , IL2= 152.53A<84.93deg,IL3= 317.11A,-61.26deg,IL4=170.63,-41.14deg. Transformer charged with charging code 252/BPSO
2	06-09-2022	00:08	06-09-2022	00:12	0	-134	220kV Chukha feeder III	Malbase Substation	Tripping	MICOM Relay. START BN, Tripped Phase,ABC,Start Element Distance, Distance trip Zone ,AB, lockout shot ,system frequency 49.91, fault duration:53.41ms, Relay time :81.78ms,	11.42 km		IA= 488.0A ,IB=5.40kA,IC=267.1A. Charged with Code 251/BPSO .
3	07-09-2022	15:51	07-09-2022	15:59	0	-	66kV Bus Coupler	Malbase Substation	Tripping	86 optd ,REF_50N Trip,IOC_50-TRIP,GENERAL TRIP			IL1=11.2920A/ 59.91deg,IL2=125.07A/ 61.57deg,IL3=13239.57A/82.06deg, IL4= 9495.89A/28.76deg
4	07-09-2022	15:51	07-09-2022	15:59	0	17	66kV Pasakha fdr no I	Malbase Substation	Tripping	86 optd ,REF_50N Trip,IOC_50-TRIP,GENERAL TRIP			IL1=1181.08A/107.54deg,IL2=65.25A/-61.16deg, IL3=1079.85A/-93.43deg, IL4= 373.73A/13.4deg
5	15-09-2022	22:41	15-09-2022	22:46	0	18	220kV Malbase-Samtse	Malbase Substation	Tripping	M1 trip,Zone1 trip	10.3km		I1=24.28A<232.2, I2=56.69A<238.5, I3.2206A<79.58, I4.2134A<28.78
6	15-09-2022	22:38	15-09-2022	22:44	0		220kV bus coupler	Malbase Substation	Tripping	86OPTD.			
7	15-09-2022	22:41	15-09-2022	22:48	0	34	50 MVA transformer III	Malbase Substation	Tripping	OLTC trip,Diff Restrain,Diff Trip,Diff WARM,Diff WAVM Trip			IL1=91.06A<27.36,IL2=151.47A<-120.59,IL3=65.52A<-126.91,IL4=227.62<-98.85
8	16-09-2022	23:28	16-09-2022	23:47	0	-119	220kV Chukha feeder III	Malbase Substation	Tripping	86 optd, Zone 1 Tripped			IA =463.1A,IB =419.9A,IC=4.718kA
9	16-09-2022	23:28	16-09-2022	23:49	0	27	50 MVA transformer III	Malbase Substation	Tripping	DIFF. TRIP,27 TRIP,86 Optd			IL1 =91.99 A< -41.12 DEG,IL2 =131.66 A< 112.19 DEG,IL3=65.07A <-119.95DEG,IL4=56.3A< 94.36DEG
10	16-09-2022	10:28	16-09-2022	10:31	0		50 MVA transformer III	Malbase Substation	Tripping	EXT. TRIP, 86 OPTD.			IL1 = 106.87 A, IL2= 423.8 A, IL3= 284.97A,IL4= 217.19A
11	16-09-2022	19:24	16-09-2022	19:50	0	10.4	220kV Malbase-Samtse	Malbase Substation	Tripping	B/U Trip			L1=3031A<270.4,L2=100.0A<182.3,L3=2961A<51.30,L4=1909A<337.9
12	16-09-2022	19:34	16-09-2022	19:39	0	26	50 MVA transformer III	Malbase Substation	Tripping	EXT TRIP, BUCH Trip			I1=13.15A<-47,I2=113.5A<133.39 I3=67.55A<144.37
13	16-09-2022	22:28	16-09-2022	22:31	0	28	50 MVA transformer III	Malbase Substation	Tripping	EXT. TRIP, 86 OPTD. OLTC, BUCH trip			IL1 = 106.82 A, IL2= 422.8 A, IL3= 284.97A,IL4= 217.19A
14	20-09-2022	08:31	20-09-2022	08:34	0	0	220 kV Bus coupler	Malbase Substation	Tripping	86 optd.			No data displayed
15	22-09-2022	07:55	22-09-2022	08:00	0	115	220kV Chukha feeder III	Malbase Substation	Tripping	O/C,Zone 1 trip , R,Y,B phase Trip. fault location 9.157Km,	fault location 9.157Km,Fd=80.03ms		I1=10.94kA,IL2=7.158kA,IL3=6.471kA
16	22-09-2022	02:55	22-09-2022	03:01	0	28	50 MVA transformer III	Malbase Substation	Tripping	Diff trip, 86 optd			IL1=153.55A<-19.74,IL2=96.02A<-34.56,IL3=76.06A<-41.48,IL4=322.34A<29.21
17	22-09-2022	02:55	22-09-2022	03:00	0	-	220kV bus coupler	Malbase Substation	Tripping	CBFP			IA=11.6A,IB=6846A, IC=5810A,IE=5393AE/F IDMT IE=5393A.
18	22-09-2022	03:04	22-09-2022	03:06	0	-	220kV bus coupler	Malbase Substation	Tripping	CBFP			
19	22-09-2022	03:04	22-09-2022	03:08	0	28	50 MVA transformer III	Malbase Substation	Tripping	DIFF. TRIP,86 Optd			IL1=404.32A<95.28deg,IL2=176.33A<-30.73deg,IL3=142.01A<134.32deg,IL4=219.83A<86.04deg
20	22-09-2022	03:04	22-09-2022	04:04	1	-111	220kV Chukha feeder III	Malbase Substation	Tripping	Zone 1 trip,86 optd	Zone 1 trip, fault location =11.598km		IA=10.56kA,IB=7.023kA,IC=5.829kA
21	22-09-2022	04:04	22-09-2022	04:12	0	-115	220kV Malbase-Samtse	Malbase Substation	Tripping	M1--trip,zone1 trip,	Fault loop=L1-L2,distance 6.2kM		M1--trip,zone1 trip,Fault loop=L1-L2, distance 6.2kM,IL1=4973A<208.6deg,IL2=6654A<164.7deg,IL3=4900A<35.75deg,IL4=994.7A<165.7deg
22	22-09-2022	04:04	22-09-2022	04:11	0	66	400/220kV, 300MVA ICT	Malbase Substation	Tripping	BuchhoD=trip			IL1=177.4A<40.06deg,IL2=181.4A<164.5deg,IL3=159.1A<66.05deg
23	23-09-2022	01:57	23-09-2022	02:07	0	19	66kV Pasakha fdr no II	Malbase Substation	Tripping	67_Trip, 86 OPTD, General Trip: 67N_Trip			IL1= 0.65A<15.65deg, IL2= 166.43A<-14.28deg,IL3= 165.86A<162.62deg IL4=0.52A<15.65deg

24	23-09-2022	01:57	23-09-2022	02:06	0	19	66kV Pasakha fdr no IV	Malbase Substation	Tripping	67N Trip, General Trip			IL1= 519.61A/-96.07deg,IL2= 666.2A/-124.6deg, I3=3509.05A/-81.22deg, I4=519.61A/-96.07deg
25	23-09-2022	01:57	23-09-2022	02:08	0	-	66kV Bus Coupler	Malbase Substation	Tripping	General Trip, 67 Trip, 67_ST2L3			IL1=919.04A/-80.79deg, IL2=487.09A/-125.7deg, I3=4758.81A/-66.65deg,I4=5948.81A/-72.8deg
26	23-09-2022	17:27	23-09-2022	17:35	0	73	400/220kV, 200MVA ICT	Malbase Substation	Tripping				
27	23-09-2022	17:27	23-09-2022	17:37	0		220 kV Bus coupler	Malbase Substation	Tripping				
28	23-09-2022	17:27	23-09-2022	17:45	0	27	50 MVA transformer II	Malbase Substation	Tripping				I1=711.05A/-2.71deg,I2=734.69A/-124.06deg,I3=704.74A/-97deg
29	23-09-2022	17:27	24-09-2022	17:46	24	19	66kV Pasakha fdr no II	Malbase Substation	Tripping				"IL1=0.29A/-1.11deg,IL2=806.21 A/18.89deg,IL3=829.52 A/-162.03deg Test charge done at 18:25hrs. date 23/09/2022 but could not hold and kept on open condition. Taken shutdown for OPG wire resting by TMD/pling (work permit number 288) on 24/09/2022 at 8:45 hours and . Test charged at 24/09/2022 @13:39 but could not hold. Test charge done @ 14:45 hold in idle charge with no load given"
30	23-09-2022	17:27	24-09-2022	17:46	24	20	66kV Pasakha fdr no IV	Malbase Substation	Tripping				"IL1=814.97A/149.39deg,IL2=573.27A / 136.57deg ,IL3=2203.33A/87.25deg Test charge done at 18:25hrs @ 23/09/2022, but could not hold and kept on open condition.Taken shutdown for OPG wire resting by TMD/pling. (work permit number 288) on 24/09/2022 at 8:45 hour and test charged at 24/09/2022 @13:40 but could not hold. Test charged hold @14:48 on 24/09/2022 in Idle Charge condition"
31	23-09-2022	17:27	24-09-2022	17:46	24	19	66kV Pasakha fdr no I	Malbase Substation	hand tripped				"Handtripped during charging of 220/66kV 50 MVA Transformer 2. test charged at 20:48 on 23/09/2022 but could not hold in ring system with 66kV bhutan Concast.Taken shutdown for OPG wire resting by TMD/pling (work permit number 288)on 24/09/2022 at 8:45 hour and test charged & hold at 24/09/2022 13:39 dated 24/09/2022 but hand tripped at 14:00 hrs dated 24/09/2022 due to mising Y phase current and is currently being attended by TMD pling (Work Permit Number 290 issued to TMD p/ling) at 15:35 hrs. and at 17:30 hrs Work permit no 290 was returned by TMD PLING and all 66kV out going feeder Charged at 17:45 hrs."
32	23-09-2022	17:27	24-09-2022	18:23	24	7.2	66kV Phuntsholing fdr.	Malbase Substation	Tripping	51 trip,86tripped			IL1=1.233kI2=197.3kI3=1.222kIN=2.031k.Kept in oped condition.
33	23-09-2022	20:48	23-09-2022	20:53	0	-	220 kV Bus coupler	Malbase Substation	Tripping	86 optd.	line		No data displayed
34	23-09-2022	20:48	23-09-2022	20:55	0	59	400/220kV, 200MVA ICT	Malbase Substation	Tripping	86 optd.	line		IL1=0.048A/15.35DEG,IL2=0.146A/28.57DEG,IL3=0.005A/173.4DEG.tripped due to test charge of 66kv feeder Tripped while doing test charge on 66kV Pasakha I and 66kV bhutan Concast fdr..
35	23-09-2022	20:48	23-09-2022	20:58	0	0.43	50 MVA transformer II	Malbase Substation	Tripping	86 optd.	line		IA=0.06A, IB=0.03A, IC=0.02A(no load. 66kV feeders out Tripped while doing test charge on 66kV Pasakha I and 66kV bhutan Concast fdr.)
36	23-09-2022	21:42	23-09-2022	22:38	0	88	220kV Birpara feeder	Malbase Substation	Tripping	O/C on R&B phase,general trip,zone 3 trip	fault location Distance=55.54KM.		IA=2.157kA, IB=170.6A, IC=3.050kA
38	28-09-2022	18:40	28-09-2022	18:44	0	108	220kV Chukha feeder III	Malbase Ss	Tripping		line		General Trip, Zone-1 Trip, Fault loop=L3-N, Dist.= 9.00 Km. Trip value IL1=378.8A/280.1deg, IL2=132.9A/71.22deg, IL3=5501A/44.04deg, IL4=5284A/47.38deg
39	28-09-2022	18:40	28-09-2022	18:45	0	25	50MVA Transformer III	Malbase Ss	Tripping				87T TRIP, DIFF TRIP, Tripped value IL1=76.52A/-61.44deg, IL2=139.94A/-119.29deg,IL3=86.52A/-123.48deg, IL4=273.19A/-107.8deg
40	30-09-2022	12:32	30-09-2022	12:39	0	117.44	220kV Malbase-Chhukha	Malbase Ss	Tripping				tripped (BB protection)
41	30-09-2022	12:32	30-09-2022	12:37	0	78	400/220kV, 200MVA ICT	Malbase Ss	Tripping				tripped (BB protection)
42	30-09-2022	12:32	30-09-2022	12:41	0	14.56	220kV Malbase-Samtse	Malbase Ss	Tripping				tripped (BB protection)
43	30-09-2022	12:32	30-09-2022	13:26	0	30.88	220kV Malbase-Birpara	Malbase Ss	Tripping				tripped (BB protection)
44	30-09-2022	12:32	30-09-2022	12:38	0		220 kV Bus coupler	Malbase Ss	Tripping				
45	30-09-2022	13:05	30-09-2022	13:12	0	36	400/220kV, 200MVA ICT	Malbase Ss	Tripping				tripped (BB protection)
46	30-09-2022	13:05	30-09-2022	13:17	0		220 kV Bus coupler	Malbase Ss	Tripping				tripped (BB protection)
47	30-09-2022	13:05	30-09-2022	13:18	0	75.84	220kV Malbase-Chhukha	Malbase Ss	Tripping				BB trip,I1=91.72A<104deg,I2=115A<79.05deg,I3=101.32A,312.1deg,I4=6.067A<153.4deg
48	30-09-2022	13:05	30-09-2022	13:22	0	9.9	220kV Malbase-Samtse	Malbase Ss	Tripping				BB trip,I1=27.72A<20.63deI2=28.26A<296.4deg,I3=28.02A,144.5deg,I4=0.2A<5.3deg

(8)220/66/11 kV Singhigaon Substation													
##	07.09.2022	15:51	7.9.22	15:54	0	32	66kV Bhutan Concast fdr.	Singhigaon Ss	O/C	Directional Time O/C trip,I E>>DIRECTIONAL TRIP,GENERAL TRIP, 86 OPTD.	line		IL1=1.14kA,IL2=3.20kA,IL3=0.34kA
##	07.09.2022	15:51	7.9.22	15:54	0	-	66kV Bus I	Singhigaon Ss	-	86 optd., lkp trip	-		
##	16.9.22	19:34	16.9.22	20:00	1	3	220kV Singhigaon- Samtse	Singhigaon Ss	tripped	zone 1 trip fault loop I3-N 24.40km	line		[illegible]
##	16.9.22	22:20	16.9.22	22:36	0	0.4	220kV Singhigaon- Samtse	Singhigaon Ss	tripped	General Trip, Zone 1 Trip, F/L=L1-N, Distance=33km	line		I1=2093A<283.6deg,I2=86.15A<96.50deg,I3=80.81A<11.7deg,I4=2714A,283.6deg
##	17.9.22	22:16	17.9.22	22:17	0	0.067	11kV feeder no 1	Singhigaon Ss	O/C	General trip,Time O/C trip, IP trip	line		IL1=1.38KA, IL2=1.45KA, IL3=1.39KA
##	18.9.22	16:46	18.9.22	16:48	0	0.05	11kV feeder no 1	Singhigaon Ss	O/C	General trip, O/C trip, Ikp trip	line		IL1=1.39kA IL2=0.01kA IL3=0.01kA
##	18.9.22	21:01	19.9.22	10:16	13	2.944	11KV Feeder III	Singhigaon Ss	O/C	IEp,time over current trip	line		Fault Current: IL1=0.02KA IL2=0.03KA IL3=0.39KA
##	20.9.22	14:43	20.9.22	17:29	2	1.26	11KV Feeder III	Singhigaon Ss	O/C	IEp,time over current trip	line		IL1=0.03kA, IL2=0.02kA, IL3=0.49kA
##	21.9.22	02:04	21.9.22	11:02	9	0.458	11KV Feeder III	Singhigaon Ss	O/C	General trip, O/C trip, IEp trip	line		IL1=0.01kA, IL2=0.01kA, IL3=0.39kA
##	21.9.22	11:45	21.9.22	16:51	#NUM!	0.18	11KV Feeder III	Singhigaon Ss	O/C	General trip, O/C trip, IEp trip	line		IL1=0.06kA,IL2=0.07kA,IL3=0.44kA
##	22.9.22	00:56	22.9.22	13:46	12	0.643	11KV Feeder III	Singhigaon Ss	O/C	General trip ,O/C trip,IEP trip.			IL1=0.05kA,IL2=0.05kA,IL3=0.43kA
##	22.9.22	04:04	22.9.22	04:22	0	2.09	220kV Singhigaon- Samtse	Singhigaon Ss	tripped	-	line		IL1=520.1A<105.3deg,IL2=2742A<277.5deg,IL3=2300<46.32deg,IL4=1475A<341.7deg
##	23.9.22	01:57	23.9.22	02:06	0	27.5	66kV Bhutan Concast fdr.	Singhigaon Ss	tripped	directional time OC trip, IE>>Directional strp, I>>Directional Trip,General trip.	line		IL1=0.46kA, IL2=1.15kA, IL3=5.62kA
##	23.9.22	17:27	24.9.22	13:47	20	26	66kV Bhutan Concast fdr.	Singhigaon Ss	tripped	Diff,trips O/C trip,IE>>diff trip,I>>diff trip.	line		I1=4.35kA,I2=[illegible] test charge at 20.49 hrs but could not hold and kept on open condition
##	25.9.22	10:03	25.9.22	10:21	0	0.779	11KV Feeder II	Singhigaon Ss	O/C	General trip, Time O/C trip, Iep>> trip	line		IL1=0.05kA,IL2=0.04kA,IL3=1.34kA

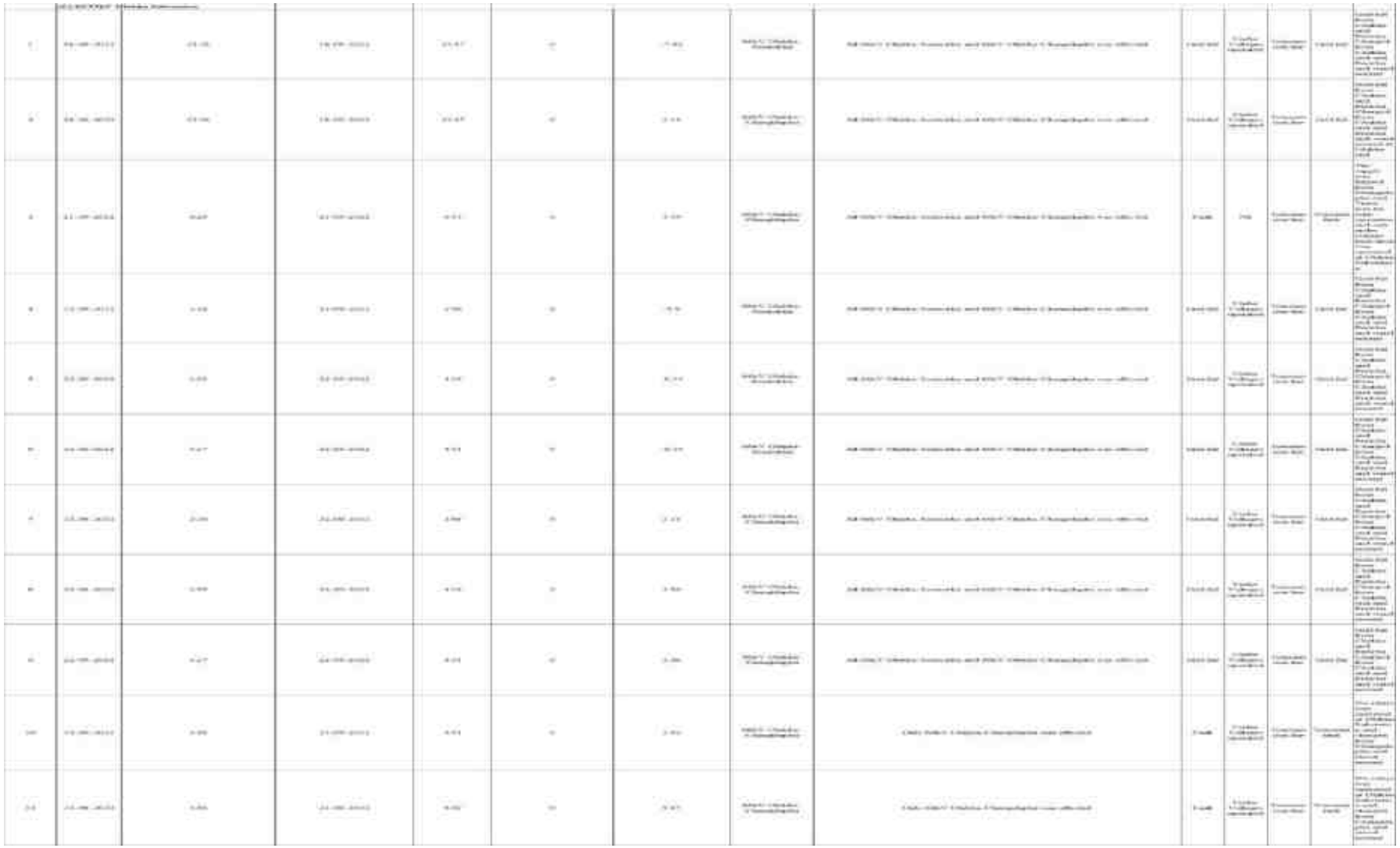
(9)66/33/11 kV Phuentsholing Substation													
1	07.09.2022	18:23	07.09.2022	18:28	0	3.48	66kV Chukha-Pling feeder	Black out at Pling ss			Tripped at chukha end		At 18:24hrs 66kV Chukha Pling feeder got tripped from chukha end and 66kV Pling Gomtu feeder got tripped at Gomtu end (i.e 66kV Dhamdhum-Gomtu feeder got tripped at Gomtu end) causing black out at Pling. At 18:27hrs normalized the 66kV Chukha-Pling from Chukha end and at 18:33hrs normalized 66kV Dhamdhum Gomtu feeder from Gomtu feeder.
2	07.09.2022	18:23	07.09.2022	18:32	0	2.87	66kV Pling-Gomtu fdr	Black out at Pling ss			66kV Dhamdum-Gomtu fdr tripped from Dhamdhum Ss		
3	11.09.2022	20:35	11.09.2022	20:42	0	2.99	66kV Chukha-Pling feeder	Black out at Pling ss			Tripped at chukha end		At 20:35hrs 66kV Chukha Pling feeder got tripped from chukha end and 66kV Pling Gomtu feeder got tripped at Gomtu end (i.e 66kV Dhamdhum Gomtu feeder got tripped at Gomtu end) causing black out at Pling. At 20:40hrs normalized the 66kV Chukha-Pling from Chukha end and at 20:42hrs normalized 66kV Dhamdhum Gomtu feeder from Gomtu feeder.
4	11.09.2022	20:35	11.09.2022	20:42	0	3.85	66kV Pling-Gomtu fdr	Black out at Pling ss			66kV Dhamdum-Gomtu fdr tripped from Dhamdhum Ss		
5			11.09.2022	23:06	20	Idle charge	66kV Pling-Malbase fdr	66kV Pling-Malbase fdr					At 20:38hrs charged 66kV Pling Malbase feeder which was under idle charge condition with closing code 271 from BPSO. At 20:45hrs opened CB of above fdr with opening code 1015 from BPSO and said feeder kept under idle charged condition after normalizing 66kV Chukha and Gomtu feeder.

6	15.09.2022	22:15	15.09.2022	22:22	0	3.67	66kV Chukha-Pling feeder	66kV Chukha-Pling feeder	Tripped at both end	DSTN OPTD, 186&85	Tripped at both end	Tripped on fault	The cause of tripping was due to transient fault. At 23:22hrs normalised with charging code 387 from BPSO.
7	15.09.2022	22:38	15.09.2022	23:07	0	1.58	66kV Pling-Gomtu fdr	Black out at Pling ss	Tripped at both end	DSTN OPTD, 186&86	Tripped at both end	Tripped on fault	Tripped at both end. At 23:07hrs test charged after getting clearance from BPSO and stood normal.
8	15.09.2022	22:38	15.09.2022	22:46	0	3.67	66kV Chukha-Pling feeder	Black out at Pling ss	Tripped at chukha end		Tripped at chukha end		At 22:38hrs 66kV Chukha-Pling feeder got tripped from chukha end and 66kV Pling-Gomtu feeder got tripped at both end causing blash out at Pling. At 22:46hrs normalised 66kV Chukha-Pling fdr from Chukha end with charging code 290.
9	16.09.2022	19:33	16.09.2022	19:41	0	1.89	66kV Chukha-Pling feeder	66kV Chukha-Pling feeder	Tripped at chukha end		Tripped at chukha end		At 19:33hrs 66kV Chukha-Pling feeder got tripped from chukha end causing black out at Pling. At 19:41hrs normalised 66kV Chukha-Pling fdr from Chukha end.
10	16.09.2022	19:33	16.09.2022	20:02	0	4.70	66kV Pling-Gomtu fdr	66kV Pling-Gomtu fdr	Tripped at their end		66kV Dhamdum-Gomtu fdr tripped from Dhamdhum Ss		At 19:33hrs 66kV Pling-Gomtu feeder got tripped at Gomtu end (i.e. 66kV Dhamdhum-Gomtu fdr tripped at Dhamdhum end) causing black out at Pling. At 20:02hrs normalised 66kV Pling-Gomtu fdr from Dhamdhum end.
11	16.09.2022	23:28	17.09.2022	00:50	1	4.06	66kV Chukha-Pling feeder	66kV Chukha-Pling feeder	Tripped at chukha end		Tripped at chukha end		At 23:28hrs 66kV Chukha-Pling fdr tripped from chukha end (Pling black out) and as per instruction from BPSO opened CB for said fdr at 23:50hrs at our end. At 00:50hrs charged from our end as per instruction from BPSO with charging code 296 and stood normal.
12	16.09.2022	23:28	17.09.2022	11:04	10	0.15	66kV Pling-Gomtu fdr	66kV Pling-Gomtu fdr	Tripped at their end		66kV Dhamdum-Gomtu fdr tripped from Dhamdhum Ss		At 23:28hrs 66kV Pling-Gomtu feeder got tripped at Gomtu end (i.e. 66kV Dhamdhum-Gomtu fdr tripped at Dhamdhum end) causing black out at Pling. At 23:37hrs test charged from Gomtu end but got tripped at our end operating distance relay. As per instruction from BPSO test charged from our end but again got tripped acutating same relay. On dated 17.09.2022 at 11:04hrs as per instruction from BPSO against closing code 300 66kV Pling-Gomtu fdr charged and stood normal.
13			16.09.2022	23:53		Idle charge	66kV Pling-Malbase fdr	66kV Pling-Malbase fdr					At 23:53hrs as per instruction from BPSO charged 66kV Pling-Malbase feeder which was under idle charged condition, since 66kV Chukha-Pling fdr and 66kV Pling-Gomtu fdr couldn't stand while test charging. On dated 17.09.2022 at 11:06hrs opened CB of 66kV Pling-Malbase feeder with opening code 1019 as per instruction from BPSO and feeder was put back to idle charged condition.
14	20.09.2022	08:31	20.09.2022	08:37	0	5.07	66kV Chukha-Pling feeder	66kV Chukha-Pling feeder	Tripped at chukha end		Tripped at chukha end		At 08:31hrs 66kV Chukha-Pling fdr tripped from chukha end (Pling black out) and at 08:37hrs normalised the supply from Chukha end with charging code 316.
15	20.09.2022	08:31	20.09.2022	08:41	0	2.11	66kV Pling-Gomtu fdr	66kV Pling-Gomtu fdr	Tripped at our end	DSTN OPTD, 186&86	Tripped at our end		At 08:31hrs 66kV Pling-Gomtu feeder got tripped at our end causing black out at Pling. At 08:41hrs as per instruction from BPSO charged Pling-Gomtu fdr against closing code 318.
16	22.09.2022	02:49	22.09.2022	03:15	0	4.86	66kV Chukha-Pling feeder	66kV Chukha-Pling feeder	Tripped at our end	DSTN OPTD, 186&86	Tripped at our end	Tripped on fault	At 03:15hrs test charged the feeder as per instruction from BPSO and stood normal.
17	22.09.2022	03:53	22.09.2022	09:53	6	4.86	66kV Chukha-Pling feeder	66kV Chukha-Pling feeder	Tripped at both end	DSTN OPTD, 186&86	Tripped at both end	Tripped on fault	66kV Pling-Chukha fdr tripped at both end, Relay OPTD Dist OPTD. As per instruction from BPSO test charged at 05:03hrs but tripped on same fault and said feeder kept under shutdown (grid fail). At 09:53hrs as per instruction from BPSO normalised the 66kV Pling-Chukha fdr.
18			22.09.2022	04:15			66kV Pling-Malbase fdr	66kV Pling-Malbase fdr					At 04:15hrs as per instruction from BPSO charged 66kV Pling-Malbase feeder which was under idle charged condition.
19	20.09.2022	12:31	20.09.2022	12:34	0	2.23	66kV Pling-Gomtu fdr	66kV Pling-Gomtu fdr	Tripped at our end	DSTN OPTD, 186&86	Tripped at our end		The cause of tripping was due to transient fault. (Pling black out)
20	23.09.2022	01:57	23.09.2022	02:07	0	3.01	66kV Pling-Gomtu fdr	66kV Pling-Gomtu fdr	Tripped at our end	DSTN OPTD, 186&86	Tripped at our end		The cause of tripping was due to transient fault. (Pling black out)
21	23.09.2022	01:57	23.09.2022	02:10	0	7.43	66kV Chukha-Pling feeder	66kV Chukha-Pling feeder	Tripped at chukha end		Tripped at chukha end		The cause of tripping was due to transient fault. (Pling black out)
22	23.09.2022	01:57	23.09.2022	02:04	0	6.12	66kV Pling-Malbase fdr	66kV Pling-Malbase fdr	Tripped at Malbase end		Tripped at Malbase end		The cause of tripping was due to transient fault. (Pling black out)
23	23.09.2022	17:27	23.09.2022	17:35	0	7.36	66kV Chukha-Pling feeder	66kV Chukha-Pling feeder	Tripped at chukha end		Tripped at chukha end		The cause of tripping was due to transient fault. (Pling black out)
24	23.09.2022	17:27	23.09.2022			7.20	66kV Pling-Malbase fdr	66kV Pling-Malbase fdr	Tripped at Malbase end		Tripped at Malbase end		The cause of tripping was due to transient fault. (Pling black out). As per instruction of BPSO 66kV Pling-Malbase feeder kept open at our end with opening code 033.
25	23.09.2022	17:27	23.09.2022	17:43	0	3.94	66kV Pling-Gomtu fdr	66kV Pling-Gomtu fdr	Tripped at our end	DSTN OPTD, 186&86	Tripped at our end		The cause of tripping was due to transient fault. (Pling black out).At 17:37hrs test charged as per instruction from BPSO but couldn't withstand. At 17:43hrs again test charged as per instruction from BPSO and stood normal.

26	27.09.2022	07:43	27.09.2022	07:50	0	3.00	66kV Chukha-Ping feeder	66kV Chukha-Ping feeder	Tripped at both end		Tripped at both end		The cause of tripping was due to transient fault.
27	28.09.2022	18:43	28.09.2022	18:52	0	2.53	66kV Chukha-Ping feeder	66kV Chukha-Ping feeder	Tripped at both end	Tripping relay 186h 86	Tripped at both end		The cause of tripping was due to transient fault. Test charged after getting clearance from BPSO with charging code 1442.
28	28.09.2022	19:13	28.09.2022	22:46	3	0.84	66kV Chukha-Ping feeder	66kV Chukha-Ping feeder	Tripped at both end	Tripping relay 186h 86	Tripped at both end		As per instruction from BPSO CB kept opened for 66kV Ping-at our end.
29			28.09.2022	19:16		Idle charge	66kV Ping-Malbase fdr	66kV Ping-Malbase fdr					At 19:16hrs charged 66kV Ping-Malbase with charging code 1444 since CB kept open for 66kV Ping-chukha feeder at our end as per instruction from BPSO. At 22:30hrs CB opened for said feeder with opening code 046 from BPSO and feeder kept under idle charged.
30			29.09.2022	10:23		Idle charge	66kV Ping-Malbase fdr	66kV Ping-Malbase fdr					At 10:23hrs charged 66kV Ping-Malbase with charging code 1452 as per instruction from BPSO. At 22:30hrs CB opened for said feeder with opening code 046 from BPSO and feeder kept under idle charged.
31	29.09.2022	13:30	29.09.2022	13:37	0	6.27	66kV Ping-Gomtu fdr	66kV Ping-Gomtu fdr	Tripped at both end	186&86	Tripped at both end		The cause of tripping was due to transient fault.
32	30.09.2022	12:32	30.09.2022	12:38	0	9.19	66kV Chukha-Ping feeder	66kV Chukha-Ping feeder	Tripped at our end	DITN OPTD. 186&86	Tripped at our end	Tripped on fault	Ping blackout since 66kV Ping-Malbase and Ping-Gomtu feeder got interrupted due to 220kV supply failure from Malbase end.
33	30.09.2022	13:05	30.09.2022	13:18	0	2.26	66kV Chukha-Ping feeder	66kV Chukha-Ping feeder	Tripped at our end	DITN OPTD. 186&86	Tripped at our end	Tripped on fault	Ping blackout since 66kV Ping-Malbase and Ping-Gomtu feeder got interrupted due to 220kV supply failure from Malbase end.
34			30.09.2022	13:19		5.87	66kV Ping-Malbase fdr	66kV Ping-Malbase fdr					At 13:19hrs CB opened for 66kV Ping-Malbase feeder with opening code 044 from BPSO and feeder kept under idle charged.
(D) 66/33/11 kV Gedu Substation													
1	15.09.2022	22:15	15.09.2022	22:22	0	1.86	66kV Chukha-P/ling	Blackout	Bad weather condition		Line segment		66kV supply charged from Chukha end
2	15.09.2022	22:39	15.09.2022	22:46	0	1.86	66kV Chukha-P/ling	Blackout	Bad weather condition		Line segment		66kV supply charged from Chukha end
3	16.09.2022	19:34	16.09.2022	19:41	0	2.71	66kV Chukha-P/ling	Blackout	Bad weather condition		Line segment		66kV supply charged from Chukha end
4	16.09.2022	23:29	16.09.2022	23:47	0	1.41	66kV Chukha-P/ling	Blackout	Bad weather condition		Line segment		66kV supply charged from Chukha end
5	22.09.2022	3:49	22.09.2022	3:55	0	1.1	66kV Chukha-P/ling	Blackout	Bad weather condition		Line segment		66kV supply charged from Chukha end
6	22.09.2022	5:53	22.09.2022	5:13	1	1.1	66kV Chukha-P/ling	Blackout	Bad weather condition		Line segment		66kV supply charged from Chukha end
7	23.09.2022	1:58	23.09.2022	2:05	0	1.56	66kV Chukha-P/ling	Blackout	Bad weather condition		Line segment		66kV supply charged from Chukha end
8	28.09.2022	7:44	28.09.2022	7:47	0	2.03	66kV Chukha-P/ling	Blackout	Bad weather condition		Line segment		66kV supply charged from Chukha end
9	28.09.2022	18:42	28.09.2022	18:52	0	1.87	66kV Chukha-P/ling	Blackout	Bad weather condition		Line segment		66kV supply charged from Chukha end
10	28.09.2022	19:12	28.09.2022	19:24	0	1.69	66kV Chukha-P/ling	Blackout	Bad weather condition		Line segment		66kV supply charged from Chukha end

(I) 66/33/11 kV Gomtu Substation													
1	07.09.2022	17:33	07.09.2022	17:38	0	2.23	66kV Phuentsholing feeder	Gomtu substation	Tripped from Chukha	Nil	Line segment	grid fail	Tripped from chukha end and supply resumed at 17.38hrs
2	07.09.2022	17:33	07.09.2022	17:32	0	-6.956	66kV Dhamdhum feeder	Gomtu substation	B phase & Y-Phase fault	Nil	Line segment	Transient fault	Charged as per the instruction from BPSO and charge withstand
3	11.09.2022	20:35	11.09.2022	20:39	0	3.51	66kV Phuentsholing feeder	Gomtu substation	Grid failed	Nil	Line segment	grid fail	Grid failed and supply resumed at 20:39hrs
4	11.09.2022	20:35	11.09.2022	20:42	0	-9.924	66kV Dhamdhum feeder	Gomtu substation	Three Phase fault	General Trip, Zone 4 Trip, R phase Fault, Y Phase Fault, B Phase fault & Distance relay operated	Line segment	Transient fault	Charged the line as per the instruction received from BPSO and charge withstand
5	15.09.2022	22:39	15.09.2022	23:08	0	1.54	66kV Phuentsholing feeder	Nil	Over current	51 Cx and 51 Bx	Gomtu substation	Transient fault	Charged the line as per the instruction received from BPSO and charge withstand charging code 290
6	15.09.2022	22:41	15.09.2022	22:48	0	-6.54	66kV Dhamdhum feeder	Gomtu substation	Grid failed	Nil	Malbase substation	grid fail	Grid failed and supply resumed at 22:48hrs.
7	16.09.2022	23:28	16.09.2022	23:37	0	-0.22	66kV Phuentsholing feeder	Nil	Over current	51 Cx and 51 Bx	Line segment	Transient fault	Test charged the line as per the instruction of BPSO and kept breaker opened at pling end at charged on 17.09.2022 at 11:04 hrs from pling end
8	16.09.2022				0								
9	20.09.2022	8:31	20.09.2022	8:41	0	2.11	66kV Phuentsholing feeder	Gomtu substation	Grid failed	Nil	Line segment	Transient fault	Tripped from source
10	20.09.2022	8:31	20.09.2022	8:41	0	-6.225	66kV Dhamdhum feeder	Gomtu substation	Grid failed	Nil	Line segment	Transient fault	Tripped from source
11	22.09.2022	4:05	22.09.2022	4:15	0	-7.44	66kV Dhamdhum feeder	Gomtu substation	Grid failed	Nil	Malbase substation	Transient fault	Tripped from Malbasey end and supply resumed at 04:15hrs.
12	22.09.2022	13:30	22.09.2022	13:53	0	2.48	66kV Phuentsholing feeder	Gomtu substation	Grid failed	Nil	Line segment	Transient fault	Tripped from pling end and supply resumed at 13:53hrs
13	22.09.2022	13:30	23.09.2022	13:38	0	-11.096	66kV Dhamdhum feeder	Gomtu substation	Y phase fault	Distance relay operated, General trip, Zone 4 trip, Y phase fault.	Line segment	Transient fault	Charged the line as per the instruction of BPSO and charge withstand.
14	23.09.2022	9:27	23.09.2022	9:03	5	0.01	66/33kV 5MVA Transformer	Nil	Over current	03MTL 50R & 50B	Line segment	Feeder fault	Tripped along with 33kV Samtse feeder and charged the transformer after keeping 33kV feeder in trip position.
15	23.09.2022	17:27	23.09.2022	17:42	0	-10.977	66kV Dhamdhum feeder	Gomtu substation	Grid failed	Nil	Line segment	Grid Failed	Grid failed from Malbase substation.
16	23.09.2022	17:43	23.09.2022	17:45	0	4.98	66 KV Phuentsholing feeder	Gomtu substation	Hand tripped as per BPSO	Nil	Gomtu substation	Hand tripped.	Breaker opened as per BPSO instruction , as P/Ling III could not charge Line.
17	23.09.2022	20:33	23.09.2022	20:43	0	3.25	66 KV Phuentsholing feeder	Gomtu substation	Grid failed	Grid failed	Line segment	Grid Failed	Grid failed from Malbase substation.
18	23.09.2022	20:33	23.09.2022	20:45	0	-8.849	66kV Dhamdhum feeder	Gomtu substation	Grid failed	Grid failed	Line segment	Grid Failed	Grid failed from Malbase substation.
19	26.09.2022	10:04	26.09.2022	11:20	1	1.55	66kV Phuentsholing feeder	Nil	Shutdown as per BPSO	Nil	Pling ss	Shutdown	Availed shutdown for arresting sparking from Y phase CT terminal pad at Phuentsholing S/S Against opening code No 044 and shutdown withdrawn at 11:20 after charging code No 1423 given from BPSO
20	30.09.2022	12:32	30.09.2022	12:38	0	-16.056	66kV Dhamdhum feeder	Gomtu substation	Grid failed	Nil	Malbasey substation	Transient fault	Tripped from Malbasey end and supply resumed at 12:38hrs.
21	30.09.2022	13:05	30.09.2022	13:17	0	-10.384	66kV Dhamdhum feeder	Gomtu substation	Grid failed	Nil	Malbasey substation	Transient fault	Tripped from Malbasey end and supply resumed at 13:17hrs.
(I) 220/66/33 kV Dhamdum Substation													
1	15.09.2022	22:41	15.09.2022	22:46	0	-8.8	Malabase	Samtse	-	-	-	-	Grid supply fail
2	16.09.2022	19:29	16.09.2022	19:50	0	-10.08	220kV Malabase fdr.	Samtse	Lightning/thunder and heavy rainfall	REL 670	Dhamdum Substation		General trip, Zone 1, Y phase fault supply failed from Malbase end.
3	16.09.2022	19:29	16.09.2022	20:03	0	-3.09	220kV Singye fdr.	Samtse	Lightning/thunder and heavy rainfall	REL 670	Dhamdum Substation		General trip, Zone 1 trip,R phase fault.supply failed from Malbase end.
4	16.09.2022	22:31	16.09.2022	22:55	0	-0.07	Singyegaon	Samtse	Lightning/thunder and heavy rainfall	REL 670	Dhamdum Substation		General trip, Zone 1, Over current on RB
5	23.09.2022	17:27	23.09.2022	17:42	0	-11.27	malbase	Samtse			Dhamdum Substation		line triped from malbase end .No equipment was operated from dhamdum s/s.
6	23.09.2022	20:34	23.09.2022	20:44	0	-8.82	220kV Malabase fdr.	Samtse	Cloudy				line triped from malbase end .No equipment was operated from dhamdum s/s.
7	23.09.2022	21:34	23.09.2022	21:44	0	-4.04	220kV Singye fdr.	Samtse	Cloudy		Dhamdum Substation		line triped from malbase end .No equipment was operated from dhamdum s/s.
8	30.09.2022	12:31	30.09.2022	12:37	0	-14.49	220kv malbase feeder	Samtse	sunny		Dhamdum Substation		line triped from malbase end .No equipment was operated from dhamdum s/s.
9	30.09.2022	13:05	30.09.2022	13:17	0	-10.06	220kv malbase feeder	Samtse	sunny		Dhamdum Substation		line triped from Malbase end .No equipment was operated from dhamdum s/s.

Sl. No.	Date of Tripping	Time of outages	Date of Normalization	Time of fault was cleared	Duration of Outages (Hrs)	MW before outage (MW)	Feeder Name	Name of the Substation/lines affected by the fault	Reasons of fault	Relay operations	Exact location of fault [Line segment / Substation]	Type of outages	Remarks
	(A) 66kV Chumdo switching station												
1	16.09.2022	2238hrs	16.09.2022	2347hrs		(-) 7.8MW	66kV Chukha Feeder	Paro,Pangbesa, Jemina	Grid Fail	No operation at chumdo	Generation end	Grid fail	Grid fail
2	22.09.2022	0246hrs	22.09.2022	0325hrs		(-) 7.8MW							
3	22.09.2022	0352hrs	22.09.2022	0422hrs		(-) 5.22MW							
4	24.09.2022	0815hrs	25.09.2022	1530hrs	9hrs	8.90MW	66kV Paro Feeder	Fed from Pangbesa Substation	S/down	CB open Line s/w Bus isolator open, E/switch closed	For 220kV LILO crossing	s/down	S/down by TPD Chukha as per the shutdown approval on 23/[illegible]
5	24.09.2022	1822hrs	24.09.2022	1837hrs		13.01MW	66kV Pangbesa Feeder	Pangbesa substation	Transient fault	CB open 3Ph	Chumdo	Tripped	Trip due to [illegible]
6	24.09.2022	1840hrs	24.09.2022	1847hrs		13.01MW							
7	28.09.2022	0752hrs	29.09.2022	1740hrs	9hrs	8.37MW		Fed from Paro Substation	S/down	CB open Line s/w Bus isolator open, E/switch closed	For 220kV LILO crossing	s/down	S/down by TPD Chukha as per the shutdown approval on 27/[illegible]
	(B) 66/33kV Watsa Substation												
1	16/9/2022	23:28hrs	16/9/2022	23:47hrs		32MW	66KV IC	Fdr. I and II	66KV IC failed from chukha end	66KV IC failed from chukha end	66KV IC failed from chukha end	Tripped	
2	22/9/2022	2:46hrs	22/9/2022	2:53hrs		25MW	66KV IC	Fdr. I and II	66KV IC failed from chukha end	66KV IC failed from chukha end	66KV IC failed from chukha end	Tripped	
3	22/9/2022	3:55hrs	22/9/2022	4:53hrs		25MW	66KV IC	Fdr. I and II	66KV IC failed from chukha end	66KV IC failed from chukha end	66KV IC failed from chukha end	Tripped	
4	20/9/2022	15:03hrs	20/9/2022	15:10hrs		1.57	66KV SF 6 breaker	Fdr. I and II	Over current on ABC phase	Over current relay operated	Fdr. II Chapcha Wangkha	Tripped	Line tripped due to tree fallen on 33KV branch line at watsa while TMD Trimalek has clearing 66KV ROW



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	(G) 66/33/11kV Dechencholing substation												
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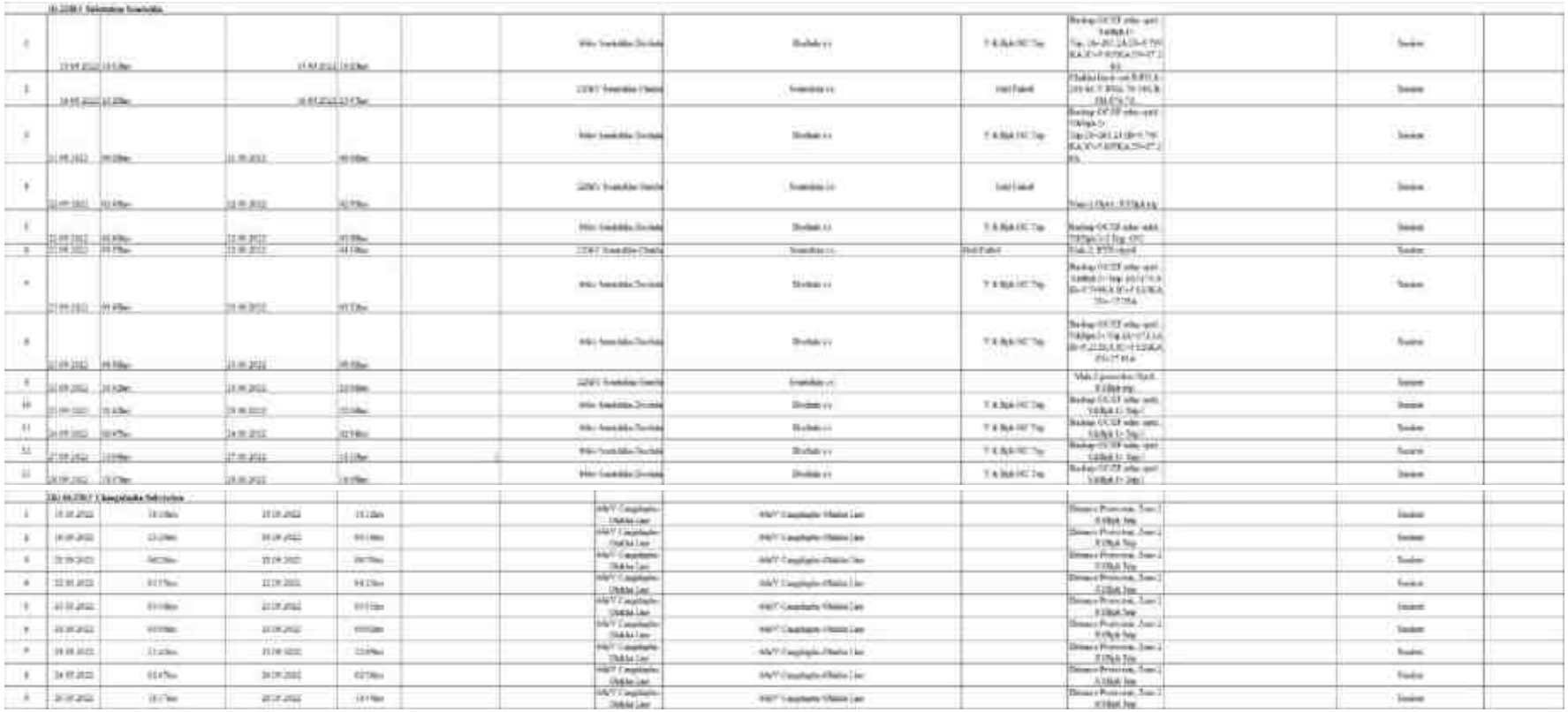

October 2022

Sl No.	Date of Tripping	Time of outages	Date of Normalization	Time of fault was cleared	Duration of Outages (Hrs)	MW before outage (MW)	Feeder Name	Name of the Substation/lines affected by the fault	Reasons of fault	Relay operations	Exact location of fault (Line segment/ Substation)	Type of outages	Remarks
66kV & Above													
(A) 400/220/66/11 kV Malbase Substation													
1	07.10.2022	23:27	07.10.2022	23:53	0	3	220kV malbase-Samtse	Malbase Substation	Tripping	B/U Trip, Tripped			[illegible]
2	08.10.2022	00:05	08.10.2022	01:32	1	4	220kV malbase-Samtse	Malbase Substation	Tripping	M1-tripped, [illegible]	[illegible]		[illegible]
(B)220/66/11 kV Singhigaon Substation													
1	7.10.22	23:26	8.10.22	05:18	6	4	220kV Singhigaon- Samtse	Singhigaon Ss	tripped	-	line		
2	9.10.22	19:27	9.10.22	21:21	2	2.49	220kV Singhigaon- Samtse	Singhigaon Ss	tripped	-	line		D/C General [illegible]
3	11.10.22	23:04	11.10.22	23:09	0	0.56	220kV Singhigaon- Samtse	Singhigaon Ss	tripped	-	line		
(B)66/33/11 kV Phuentsholing Substation													
1	08.10.2022	00:29	09.10.2022	00:53	0	-5.51	66kV Chukha-Pling feeder	Black out at Pling ss			Tripped at chukha end		[illegible]
2	08.10.2022	00:29	08.10.2022	00:47	0	8.20	66kV Pling-Gomtu fdr	Black out at Pling ss		DTTS OPTD, 186886	Tripped at our end		
3			08.10.2022	00:50		idle	66kV Pling-Malbase fdr	66kV Pling-Malbase fdr					[illegible]
4	11.10.2022	00:50	11.10.2022	00:55	0	-7.86	66kV Chukha-Pling feeder	66kV Chukha-Pling feeder	Tripped at both end	186886	Tripped at both end		The cause of tripping was due to transient fault. [illegible]
5	19.10.2022	05:36	19.10.2022	05:44	0	-0.81	66kV Pling-Gomtu fdr	Black out at Pling ss		DTTS OPTD, 186886	Tripped at our end		[illegible]
6			20.10.2022			idle	66kV Pling-Malbase fdr	66kV Pling-Malbase fdr					[illegible]
(D) 66/33/11 kV Gedu Substation													
1	08.10.2022	0:21	08.10.2022	0:30	0	3.02	66kv chukha pling fdr	Gedu Black Out					Due to lightning & thundering tripped both source
2	11.10.2022	0:51	11.10.2022	0:56	0	1.26	66kv chukha pling fdr	Gedu Black Out					Due to lightning & thundering tripped both source
(E) 66/33/11 kV Gomtu Substation													
1	07.10.2022	23:24	07.10.2022	14:06	15	8.01	66/33 kV 5 MVA Transformer	Nil	Punctured 33kV Bus PT	Nil	Gomtu SS	Hand Tripped	66/33kV 5 MVA Transformer manually hand trip due to 33 kV Y Phase Bus PT was punctured. Charged the transformer after changing the 33kV bus PT.
2	8.10.2022	0:20	8.10.2022	0:22	0	-1.264	66kV Dhamdhum feeder	Gomtu ss	Tripped	General tripped	Line segment	Transient Fault	General Tripped. Charged as per BPSO instruction.
3	8.10.2022	0:29	8.10.2022	0:38	0	-1.354	66kV Dhamdhum feeder	Gomtu ss	Tripped	General tripped	Line segment	Transient Fault	General Tripped. Charged as per BPSO instruction.
4	12.10.2022	14:00	12.10.2022	19:12	5	0	66/33kV 5MVA Transformer	33kv Samtse line	Shutdown	Nil	Gomtu SS	Shutdown	Availed shutdown against work permit No. [illegible] for maintenance team for inspection 33kV Samtse feeder breaker and transformer testing as Transformer is producing abnormal sound
5	23.10.2022	5:28	23.10.2022	5:53	0	-1.990	66kV Dhamdhum feeder	Gomtu ss	Grid failed	Nil	Line segment	Transient Fault	Grid failed from both the source
(F) 220/66/33 kV Dhamdum Substation													
1	07.10.2022	23:26	08.10.22	05:18	5	-6.01	220kV Singhigaon Fdr	--	Heavy rainfall, lightning & thunder	RELAY 670	-	Transient fault	Tripped feeder due to Over current on YB Zone - 1
2	08.10.2022	00:06	08.10.2022	01:32	1	-5.41	220kV Malbase Fdr	Samtse Dhamdhum	Heavy rainfall, lightning & thunder	RELAY 670	-	Transient fault	Supply tripped from Malbase end
3	09.10.2022	19:26	09.10.2022	20:00	0	3.26	220kV Singhigaon Fdr	-	Heavy Raining	RELAY 670	-	Transient fault	Feeder tripped due to Over Current on BR (Zone I) 1) Fault [illegible] 2) Fault [illegible]
4	11.10.2022	23:04	11.10.2022	23:09	0	0.55	220kV Singhigaon Fdr	-	Heavy Raining	RELAY 670	-	Transient fault	Feeder tripped due to Over Current on BR (Zone I). General trip value [illegible]
5	14.10.2022	13:00	14.10.2022	15:39	2	0.44	220kV Singhigaon Fdr	-	Shutdown	-	-	Shutdown	Shut down taken by Maintenance team [illegible]

	(C) 66/33kV Olakha Substation											
1	07-10-2022	2:04	07-10-2022	2:25	0	3.11	66/33kV 20MVA, Transformer I	All the 33kV was effected as the 33kV Incomer I & II was tripped	Over current and earth fault	Earth Fault Over Current Operated	Distribution line	Transient fault
2	07-10-2022	2:04	07-10-2022	2:25	0	3.1	66/33kV 20MVA, Transformer II	All the 33kV was effected as the 33kV Incomer I & II was tripped	Over current and earth fault	Earth Fault Over Current Operated	Distribution line	Transient fault
	(F) 66/33/11kV Jemina Substation											
1	21.10.2022	18:41	21.10.2022	18:48	0	26.07 (Imp) Changedaphu & 22.53 (Exp) Chamdo	66 kV Line Changedaphu & Chamdo	Black out	Supply failed from Semtokha end due to failure of the Bus coupler on OC.	Nil	Semtokha Substation	-
2	24.10.2022	18:22	24.10.2022	18:25	0	27.45 (Imp) Changedaphu & 24.063 (Exp) Chamdo	66 kV Line Changedaphu & Chamdo	Black out	Supply failed from Semtokha end due to failure of the Bus coupler on OC.	Nil	Semtokha Substation	-
3	24.10.2022	18:46	24.10.2022	18:50	0	27.45 (Imp) Changedaphu & 24.063 (Exp) Chamdo	66 kV Line Changedaphu & Chamdo	Black out	Supply failed from Semtokha end due to failure of the Bus coupler on OC.	Nil	Semtokha Substation	-
4	26.10.2022	15:59	26.10.2022	16:20	0	-17.86	66 kV Line Changedaphu	Black out	Supply failed from Changedaphu end to upgrate the CTR of the line	Nil	Changedaphu	-
5	26.10.2022	16:20	26.10.2022	16:34	0	-17.86	66 kV Line Changedaphu	Black out	SOTF operated	Nil	Changedaphu	
6	26.10.2022	16:20	26.10.2022	16:37	0	15.48	66 kV Line Chamdo	Black out	SOTF operated	Nil	Changedaphu	
	(H) 66/11kV Haa Substation											
1	18.10.2022	18:12	18.10.2022	18:20	0	-2.81	66kV incomer	All	grid fail	O/C	Chamdo switching station	
2	18.10.2022	18:29	18.10.2022	18:57	0	-2.81	66kV incomer	All	grid fail	O/C	Chamdo switching station	
3	21.10.2022	18:41	21.10.2022	18:48	0	-3.04	66kV incomer	All	grid fail	O/C	Chamdo switching station	
4	22.10.2022	14:35	22.10.2022	14:40	0	-1.83	66kV incomer	All	Emergency shutdown	Nil	Chamdo switching station	
5	24.10.2022	18:22	24.10.2022	18:25	0	-2.83	66kV incomer	All	Buscoupler tripped	O/C	Changedaphu ss	
6	24.10.2022	18:45	24.10.2022	18:48	0	-2.83	66kV incomer	All	Buscoupler tripped	O/C	Chukha power house	
7	26.10.2022	15:58	26.10.2022	16:36	0	-1.7	66kV incomer	All	To upgrade CT ratio	Nil	Changedaphu ss	
8	28.10.2022	13:09	28.10.2022	14:53	1	-1.94	66kV incomer	All	To upgrade CT ratio	Nil	Pangbesa	
	(I) 220kV Substation Semtokha											
1	07.10.2022	02:05hrs	07.10.2022	02:10hrs			66kv Semtokha-Dochula Line	Dochula s/s	Directional EF trip	Backup OC/EF relay optd., V&flgh I> Trip-IA=615.8A,IB=520.1A,IC=297.2A		Trasient
2	01-10-2022	13:23 hrs	01-10-2022	14:01 hrs	0 hrs	4.42	66/11kV 20MVA-1 Transformer	Semtokha s/s	Grid Failed	Chukha black-out R-PH A-280.6A,Y-PHA-70.39A,B-PH 676.7A.		Trasient

66/33kV Changedaphu Substation

	18:22 hrs	24-10-2022	18:26 hrs	0 hrs	4 mins		66kV Cangidaphu substation	Over Current	OC/EF Relay optd., Over current trip		Trasient	
	18:46 hrs	24-10-2022	18:50 hrs	0 hrs	4 mins		66kV Cangidaphu substation	Over Current	OC/EF Relay optd., Over current trip		Trasient	
	18:14 hrs	25-10-2022	18:15 hrs	0 hrs	1mins		66kV Cangidaphu substation	Over Current	OC/EF Relay optd., Over current trip		Trasient	
	18:38hrs	25-10-2022	18:39 hrs	0 hrs	1 mins		66kV Cangidaphu substation	Over Current	OC/EF Relay optd., Over current trip		Trasient	
	18.45hrs	21-10-2022	18:48hrs	0	3mins		66kV Cangidaphu substation	Over Current	OC/EF Relay optd., Over current trip		Trasient	
	18:22 hrs	24-10-2022	18:26	0 hrs	4 mins		66kV Cangidaphu substation	Over Current	OC/EF Relay optd., Over current trip		Trasient	
	18:46 hrs	24-10-2022	18:51 hrs	0 hrs	5 mins		66kV Cangidaphu substation	Over Current	OC/EF Relay optd., Over current trip		Trasient	
	18:14 hrs	25-10-2024	18:16hrs	0hrs	2mins		66kV Cangidaphu substation	Over Current	OC/EF Relay optd., Over current trip		Trasient	
	18:38hrs	25-10-2024	18:40hrs	0hrs	2mins		66kV Cangidaphu substation	Over Current	OC/EF Relay optd., Over current trip		Trasient	
	02:05 hrs	07-10-2022	02:25hrs	0	15mins		66kV Cangidaphu substation		Distance relay optd., Y&Bph Zone 2 trip		Trasient	

66/33kV Damji Substation

11kV Dochula Substation

	07-10-2022	02:06	07-10-2022	02:13		-32.22	66kV Semtokha	Semtokha - Dochula	Transit fault	Under voltage and 86 relay	Semtokha	Temporary
	07-10-2022	02:06	07-10-2022	02:13		-30.25	66kV Lobeysa	Lobeysa - Dochula	Transit fault	Under voltage and 86 relay	Lobeysa	Temporary

November 2022

Sl No	Date of Tripping	Time of outages	Date of Normalization	Time of fault was cleared	Duration of Outages (Hrs)	MW before outage (MW)	Feeder Name	Name of the Substations/lines affected by the fault	Reasons of fault	Relay operations	Exact location of fault [Line segment/ Substation]	Type of outages	Remarks
(F) 220/66/33 kV Dhamdum Substation													
1	19.11.2022	15:13	19.11.2022	15:17	0	1.46	5MVA TRF.1	Darnidum	O/C	REF615 67TRIP		Transient fault	Trip along with Dorokha feeder
(C) 66/33kV Olakha Substation													
1	25-11-2022	10:02	25-11-2022	10:06	0	11.45	66kV Olakha-Changidpita	Only 66kV Olakha-Changidpita was affected	Under Voltage	Distance protection operated	Transmission line	Transient fault	Tripped due to distance ports, under voltage and trip relay 86 indicated
(H) 66/11kV Haa Substation													
1	29.11.2022	11:53	29.11.2022	15:55	2	1.58	5MVA Transformer - I	5MVA Transformer - I	Tan Delta testing	Nil	Haa substation	Shutdown availed by Mr. Ugyen Phuntsho, SM(I), Semtokha to carryout Tan Delta testing of 5mva transformer - I vide work permit no. 2283, dated 29.11.2022. The same was normalized after completing the work.	Supply tripped from the source
2	29.11.2022	14:01	29.11.2022	15:58	1	2.23	5MVA Transformer - II	5MVA Transformer - II	Tan Delta testing	Nil	Haa substation	Shutdown availed by Mr. Ugyen Phuntsho, SM(I), Semtokha to carryout Tan Delta testing of 5mva transformer - II vide work permit no. 2283, dated 29.11.2022. The same was normalized after completing the work.	Supply tripped from the source
3	29.11.2022	15:52	29.11.2022	16:47	0	2.44	5MVA Transformer - I	5MVA Transformer - I	Tan Delta testing	Nil	Haa substation	Shutdown availed by Mr. Ugyen Phuntsho, SM(I), Semtokha to carryout Tan Delta testing of 5mva transformer - I vide work permit no. 2284, dated 29.11.2022. The same was normalized after completing the work.	Supply tripped from the source
(I) 220kV Substation Semtokha													
1	24-11-2022	10:02hrs	24-11-2022	10:07hrs	0	93.54mw	66kv Semtokha-Dochula Line	Dochula s/s	Over Current	Backup OC/EF relay optd., Y&Bph I> Trip.A=295.5A IB=5.728kA IC=5.522kA IN=17.7kA		Transient	
2	24-11-2022	10:02hrs	24-11-2022	10:20hrs	0	57.01	220kV Semtokha-BHP Line	220kV Semtokha-BHP Line		Distance relay Main-2 Optd. R,Y,Bph trip			
3	30-11-2022	10:30hrs	30-11-2022	11:31hrs	0 hrs	73.04	220kV Semtokha-CHP Line	Shutdown availed by CHP, DOPC, to attend spark on Bph CT at CHP end		Backup OC/EF relay optd., Y&Bph I> Trip.IA=263.24.1 IB=5.799KA,IC=5.605KA,IN=17.26A		Transient	
(M) 66/11kV Dochula Substation													
1	25-11-2022	10:02	25-11-2022	10:19		82.22	66kV Semtokha	Semtokha - Dochula	Transit fault	Under voltage and 86 relay	Semtokha	Temporary	DHI
2	25-11-2022	10:02	25-11-2022	10:21		80.25	66kV Lobeysa	Lobeysa - Dochula	Transit fault	Under voltage and 86 relay	Lobeysa	Temporary	DHI

December 2022

Sl No.	Date of Tripping	Time of outages	Date of Normalization	Time of fault was cleared	Duration of Outages (Hrs)	MW before outage (MW)	Feeder Name	Name of the Substation/lines affected by the fault	Reasons of fault	Relay operations	Exact location of fault [Line segment/ Substation]	Type of outages	Remarks
66kV & Above													
(A) 400/220/66/11 kV Malbase Substation													
##	07.12.2022	10:14	09.12.2022	13:12	2	0.08	10MVA Transformer I	Malbase ss	Tripped		substation		Transformer was kept under tripped condition since it indicates Differential tripped and inspection was carried out physically and relay setting checked & found normal
(B) 220/66/11 kV Singhigaon Substation													
1													
2													
(B) 66/33/11 kV Phuentsholing Substation													
1	06.12.2022	13:08				-12.54	66kV Pling-Malbase fdr	66kV Pling-Malbase fdr					At 13:08hrs Opened CB of 66kV Pling-Malbase feeder with opening code 0284 from BPSO and said feeder was kept under idle charged condition.
2			06.12.2022	17:12		idle	66kV Pling-Malbase fdr	66kV Pling-Malbase fdr					At 17:12hrs charged 66kV pling-Malbase feeder with closing code [illegible] which was under idle charged. since at 17:17hrs CB of 66kV Chukha-Pling fdr was kept opened at chukha end inorder to avoid overloading at Chukha end. (i.e because of increased [illegible] load at [illegible] end)
##	26.12.2022	23:10	26.12.2022	23:34	0	0.44	66kV Pling-Gomtu fdr	66kV Pling-Gomtu fdr	Tripped	Dist Prot oprtd, 186 & 86	Line	Tripped on fault	At 23:22hrs test charged after getting clearance from BPSO but got tripped on same fault. Normalized the feeder after opening CB from Gomtu end.
(C) 66/33/11 kV Gedu Substation													
1	07.12.2022	9:55	07.12.2022	9:57	0	16	10MVA 66/33kV TR-II	33kV DHI feeder III	OTI trip	OTI trip	Substation		Transformer tripped on OTI, charged after checking the OTI and WTI setting for transformer
2	09.12.2022	11:00	09.12.2022	17:41	6	15.1	10MVA 66/33kV TR-II	33kV DHI feeder III	OTI trip	OTI trip	Substation		Work permit no. 42 issued to Mr. Pema Ram [illegible] maintenance team for installation of radiator cooling fan
3	10.12.2022	12:00	10.12.2022	14:10	2	6.58	10MVA 66/33kV TR-I	33kV DHI feeder III	OTI trip	OTI trip	Substation		Work permit no. 44 issued to Mr. Pema Ram [illegible] maintenance team for installation of radiator cooling fan
4													
(E) 66/33/11 kV Gomtu Substation													
1	15.12.2022	15:50	15.12.2022	18:20	5	2.76	66/11kV 10MVA transformer	Gomtu ss	OLTC problem	Nil			Maintenance of OLTC
2	26.12.2022	23:10	26.12.2022	23:36	0	-15.201	66kV Damdum feeder	Gomtu ss	Y Phase & B phase fault	General Tripped, Zone-4 Trip,Rph Trip, Yph Trip, Bph Trip	Gomtu SS	Transient fault	66 kV Damdum Tripped on distance Prots. Zone 4 Bph fault Yph Fault Bph fault
3	26.12.2022	23:33	26.12.2022	23:36	0	10.09	66kV Phuentsholing feeder	Nil	Hand tripped	Nil	Gomtu SS		Breaker opened as per BPSO instruction, as P/Ling SS could not charge Line
(F) 220/66/33 kV Dhamdum Substation													
1	26.12.2022	23:14	26.12.2022	23:30	0	15.16	66kV Gomtu Feeder	Gomtu s/s	O/C	General trip,Zone 3 trip, RYB faulty		O/C	Tripped on O/C. General trip, Zone 3 trip. RYB phase fault,IL1: Fault mag. 3.104,Fault Ang. -141.99 IL2: Fault mag. 0.35A, Fault Ang. -77.27 IL3: Fault mag. 3.11A, Fault Ang. -21.30A

Tripping Report for the month of DECEMBER 2022

Sl No.	Date of Tripping	Time of outages	Date of Normalization	Time of fault was cleared	Duration of Outages (Hrs)	Duration of Outages (Min)	MW before outage (MW)	Feeder Name	Name of the Substation/lines affected by the fault	Reasons of fault	Relay operations	Exact location of fault [Line segment/ Substation]	Type of outages	Remarks
(I) 220kV Substation Semtokha														
2	23.12.2022	09:59hrs	23.12.2022	10:12hrs	0	17		220kV Semtokha-BHP Line	220kV Semtokha-BHP Line	Direct Trip Received	No relay operation		Trainee	