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

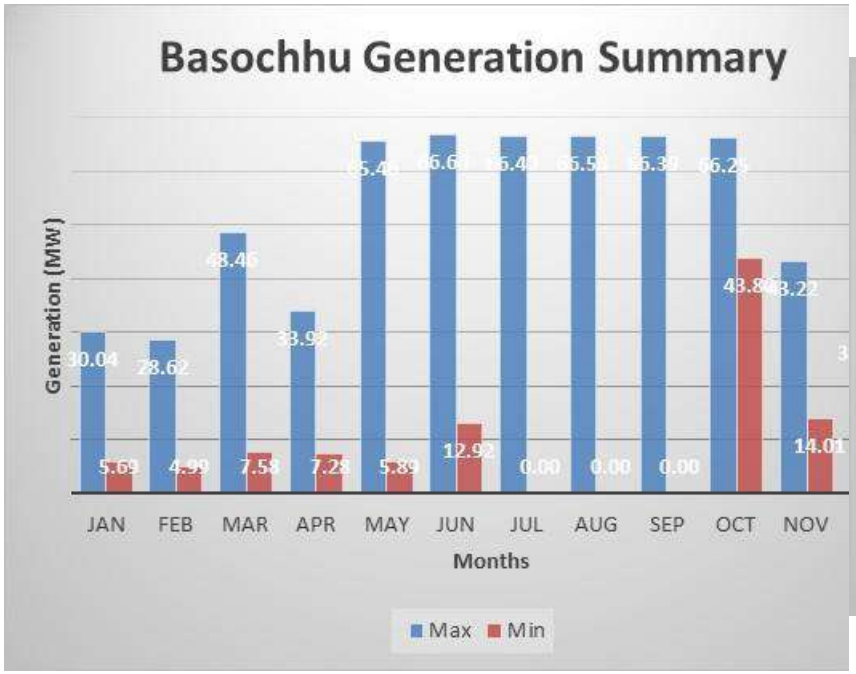
2.1 POWER GENERATION

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.

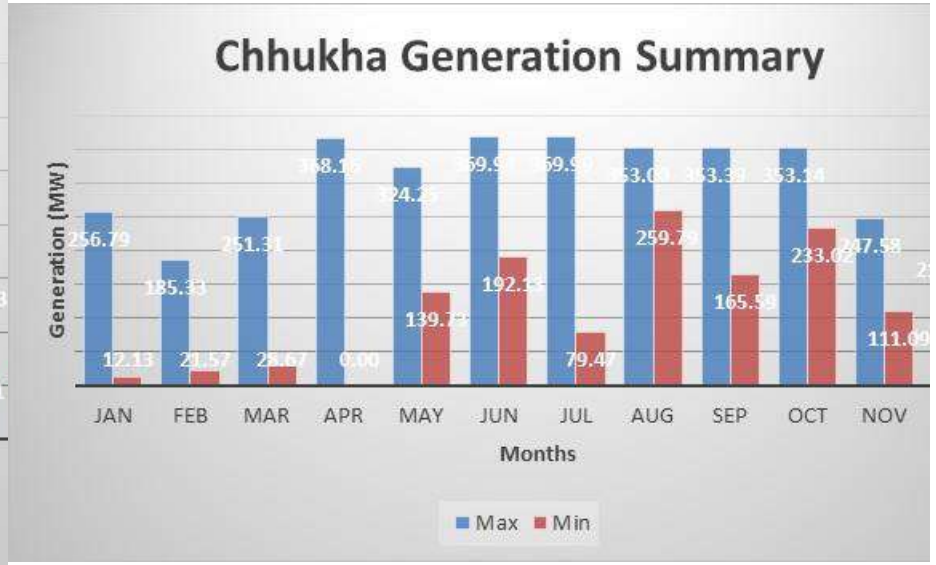
Table: 2.1.1 Monthly maximum and minimum generation summary

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**

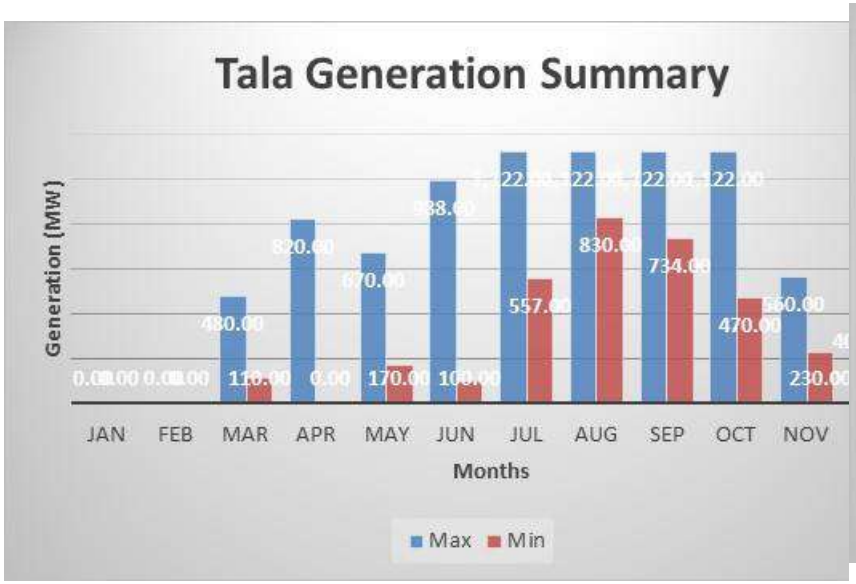
Graph: 2.1.1 Basochhu generation summary



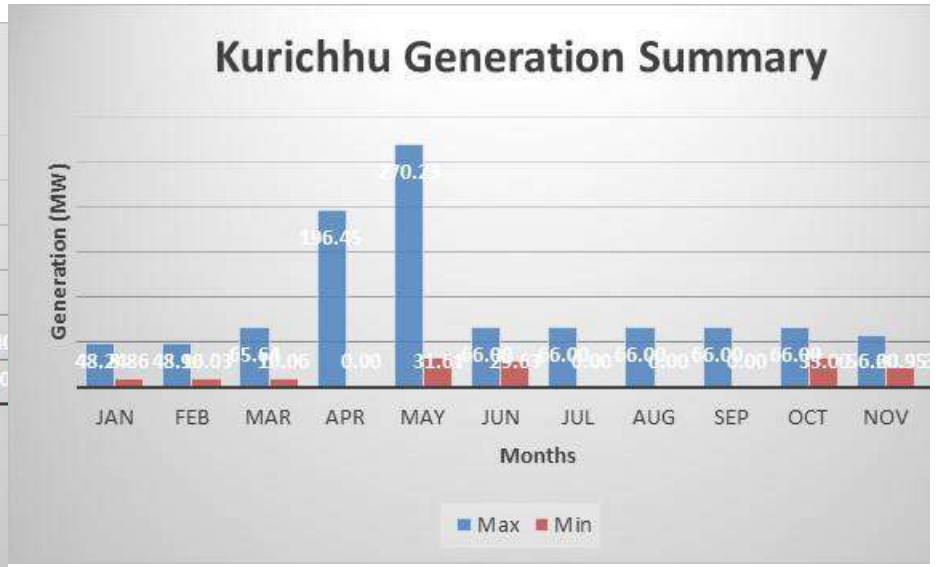
Graph: 2.1 Chhukha generation summary



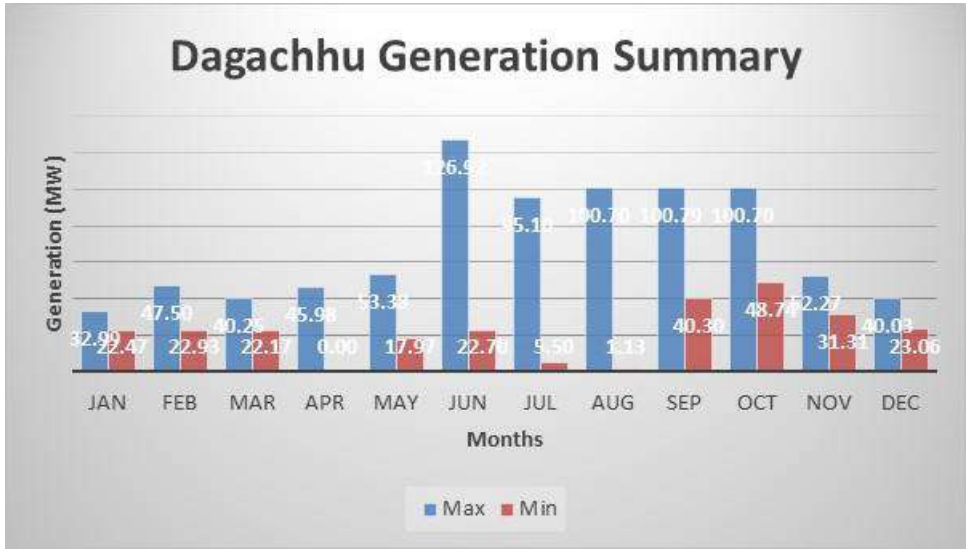
Graph: 2.1.3 Tala generation summary



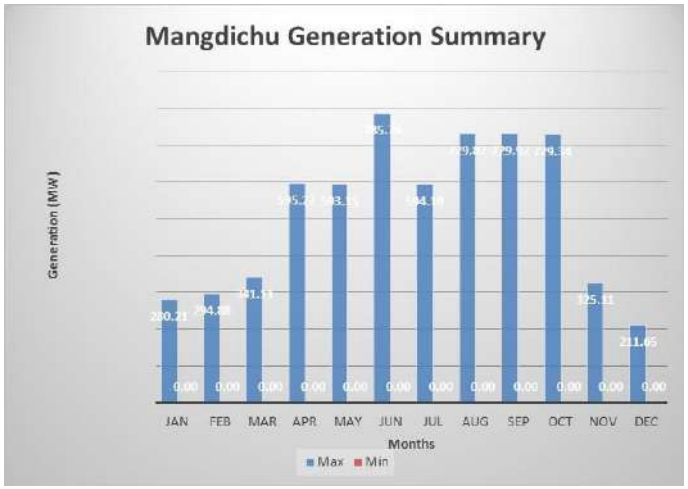
Graph: 2.1.4 Kurichhu generation summary



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:

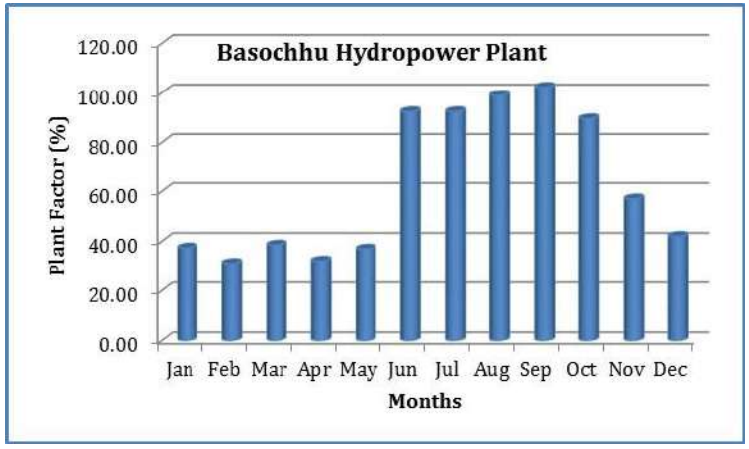
Plant factor = (Actual output of a plant over a period of time) / (Output when operated at name plate rated capacity for entire time)

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

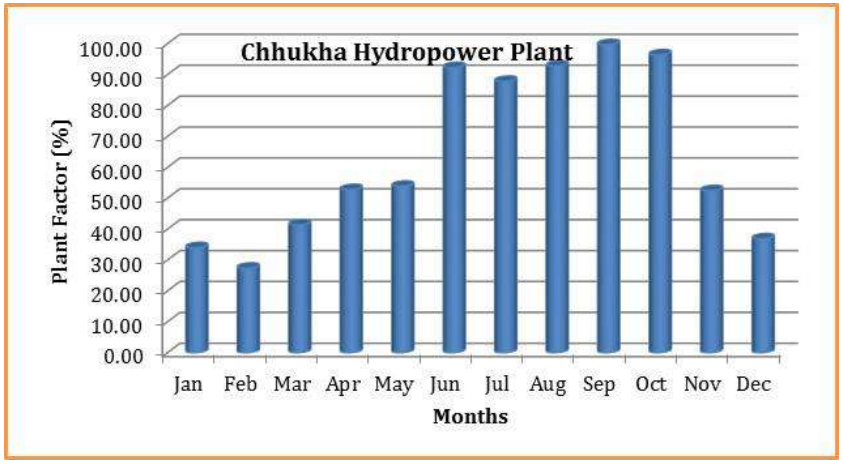
Table: 2.2.1 Monthly plant factor of the hydropower plants

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**

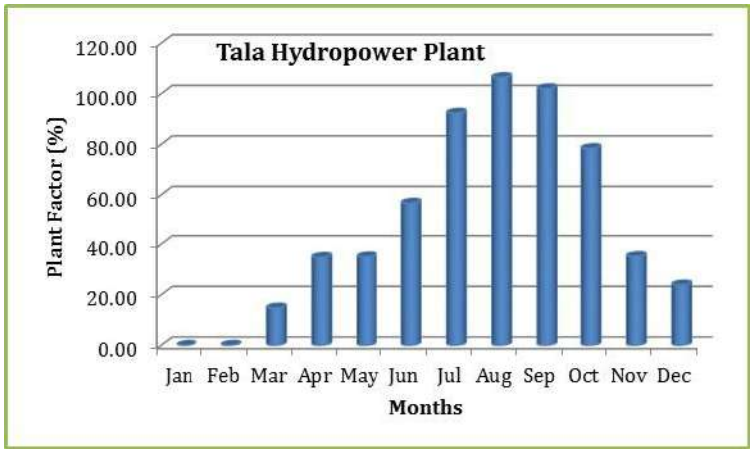
Graph: 2.2.1 Plant factor of Basochhu Hydropower Plant



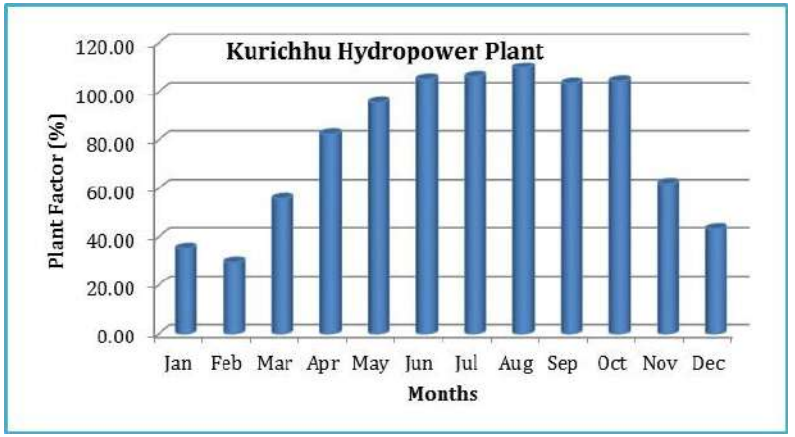
Graph: 2.2.2 Plant factor of Chhukha Hydropower Plant



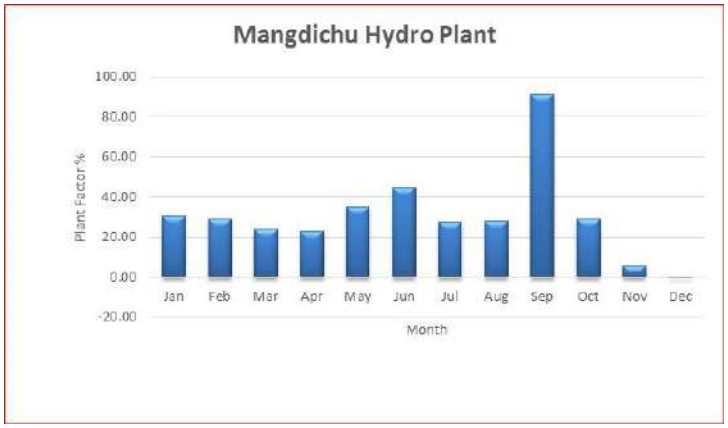
Graph: 2.2.3 Plant factor of Tala Hydropower Plant



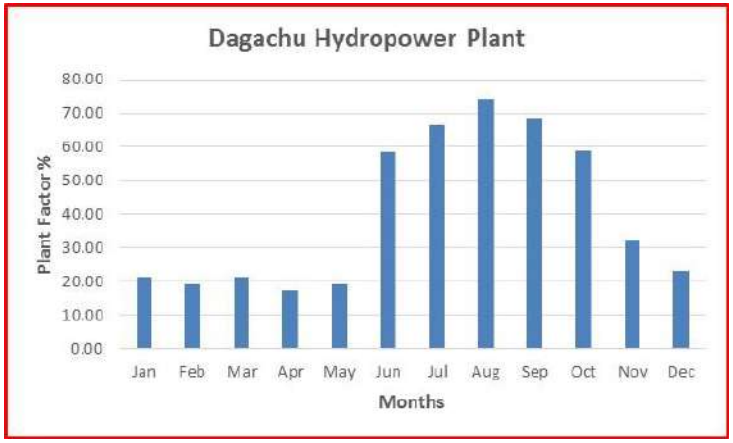
Graph: 2.2.4 Plant factor of Kurichhu Hydropower Plant



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					

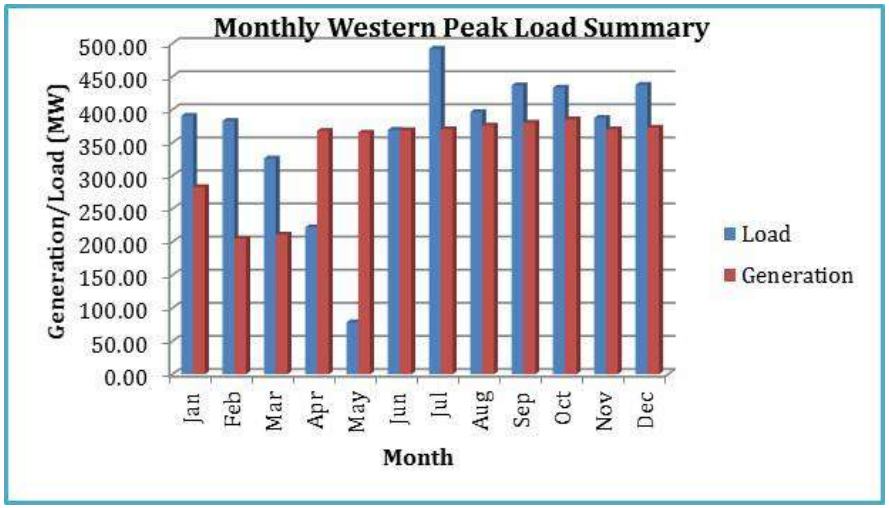
.2 WESTERN GRID PEAK LOAD

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



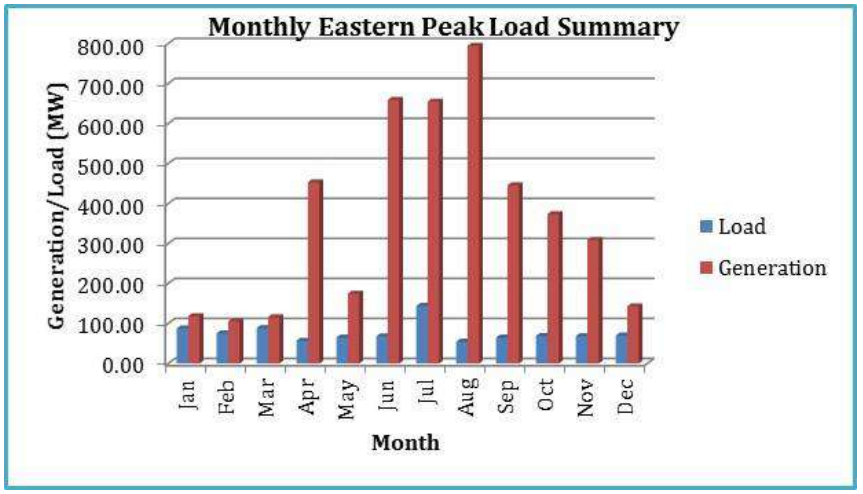
3.3 EASTERN GRID PEAK LOAD

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

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

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Naagkor Substation
Month:	Jan-22

Sl No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping		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)		Protecton Relay Optd	Fault Details (As recorded by relay)			
132kV Feeders															
1	5MVA Transformer-I, 132/22/11kV	132kV	Tripping	02-01-2022	10:47 hrs	02-01-2022	10:439 hrs	0	2	0.68	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Tsebar feeder
2	5MVA Transformer-II, 132/22/11kV	132kV	Tripping	02-01-2022	10:47 hrs	02-01-2022	10:48 hrs	0	1	0.52	Non directional IDMT PROTN Relay operated	Non dirO/C relay-50A & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Tsebar feeder
3	5MVA Transformer-I, 132/22/11kV	132kV	Tripping	03-01-2022	03:12 hrs	03-01-2022	03:13 hrs	0	1	0.42	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped due to feeder fault	-	Tripped due to fault on 33kV Tsebar feeder
4	5MVA Transformer-II, 132/22/11kV	132kV	Tripping	03-01-2022	03:12 hrs	03-01-2022	03:14 hrs	0	2	0.25	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped due to feeder fault	-	Tripped due to fault on 33kV Tsebar feeder
5	Nangkor-Nganglam	132kV	Tripping	12-01-2022	08:14 hrs	12-01-2022	08:29 hrs	0	15	-14.4	MiCOMP14DB & P442	***Directionol -O/C & E/F Relay*** : Start Ø CN, tripped Ø N,O/C start I>1, E/F1 start IN1>12, trip IN1>2,VAB=127.8kV, VBC=99.91kV,VCA=94.07kV,VAN=73.38kV,VBN=72.45kV,VCN=38.08kV,VN=0.01A=40.32A,IB=93.69A,IC=95.5A, INDerived=1.016kA, IN measured=1.013kA & tripping relay 86 operated at our end. ***Distance relay*** Start Ø CN, fault duration=203.4ms, relat trip time=0.005, fault location=44.14KM, IA=42.0A, IB=95.19A, IC=945.5A, VAN=73.54kV, VBN=72.87, VCN=38.31kV, fault resistance=5.824Ω, fault zone-Zone 3	Tripped on fault		Informed to BPSO, and charged as per their instruction.
6	5MVA Transformer-I, 132/22/11kV	132kV	Tripping	17-01-2022	09:00 hrs	17-01-2022	09:05 hrs	0	5	1.09	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped due to feeder fault	-	Tripped due to fault on 33kV Wamrong feeder
7	5MVA Transformer-II, 132/22/11kV	132kV	Tripping	17-01-2022	09:00 hrs	17-01-2022	09:05 hrs	0	5	0.82	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped due to feeder fault	-	Tripped due to fault on 33kV Wamrong feeder

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Deothang Substation
Month:	Jan-22

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping		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)		Protecton Relay Optd	Fault Details (As recorded by relay)			
NO TRIPPING															

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Nganglam Substation
Month:	Jan-22

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping		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)		Protecton Relay Optd	Fault Details (As recorded by relay)			
132kV															
1	Tingbi-Nganglam	132kV	Tripping	12.01.2022	8:10	12.01.2022	8:25	0	15	-28.91	Micom relayP442	IA=122.4A IB=243.1A IC=1.232KA Ph-CN Tripped ABC	Over Current		Supply restored after confirmation from BPSO and coordination to Tingbi end
2	5MVA Tr-II	132kV	Tripping	27.01.2022	14:58	27.01.2022	15:03	#REF!	5	0.752	O/C & E/F Micom relay		Due to 33kV Dechenling Feeder		Supply restored after Isolating the 33kV Dechenling Feeder and withstood.

Division:	SMD-DEOTHANG
Substation:	132/33kV Motanga Substation
Month:	Jan-22

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping		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)		Protecton Relay Optd	Fault Details (As recorded by relay)			
1	DML Factory Feeder	132kV	Tripping	07-01-2022	12:24:00 PM	07-01-2022	22:28:00 PM	0	4	0	86A & 86B OPTD	_	_	_	Charged the feeder with a charging code 1039 from BPSO
2	Deothang Feeder	132kV	Tripping	08-01-2022	12:05	08-01-2022	12:19	0	14	-24.62	86A & 86B OPTD	_	_	_	Charged the feeder with a charging code 1046 from BPSO
3	Rangia Feeder	132kV	Tripping	08-01-2022	12:05	09-01-2022	0:51	12	46	4.42	_	_	Y-Phase LA was punctured at Rangia end.	_	Charged the feeder with a charging code 1048 from BPSO(Bhutan), 817 from NLDC(India) and 4588 from BRLDC(India).
4	DML Factory Feeder	132kV	Tripping	15-01-2022	12:43:00 PM	15/1/2022	22:45:00 PM	0	2	0	86A & 86B OPTD	_	_	_	Charged the feeder with a charging code 1095 from BPSO

Division:	SMD-DEOTHANG
Substation:	132/33kV Motanga Substation
Month:	Jan-22

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping		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)		Protecton Relay Optd	Fault Details (As recorded by relay)			
1	DML Factory Feeder	132kV	Tripping	07-01-2022	12:24:00 PM	07-01-2022	22:28:00 PM	0	4	0	86A & 86B OPTD	_	_	_	Charged the feeder with a charging code 1039 from BPSO
2	Deothang Feeder	132kV	Tripping	08-01-2022	12:05	08-01-2022	12:19	0	14	-24.62	86A & 86B OPTD	_	_	_	Charged the feeder with a charging code 1046 from BPSO
3	Rangia Feeder	132kV	Tripping	08-01-2022	12:05	09-01-2022	0:51	12	46	4.42	_	_	Y-Phase LA was punctured at Rangia end.	_	Charged the feeder with a charging code 1048 from BPSO(Bhutan), 817 from NLDC(India) and 4588 from BRLDC(India).
4	DML Factory Feeder	132kV	Tripping	15-01-2022	12:43:00 PM	15/1/2022	22:45:00 PM	0	2	0	86A & 86B OPTD	_	_	_	Charged the feeder with a charging code 1095 from BPSO

Division:	SMD-DEOTHANG
Substation:	132/33kV Corhang Substation
Month:	Jan-22

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping		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)		Protecton Relay Optd	Fault Details (As recorded by relay)			
NO TRIPPING															

Division:	SMD-DEOTHANG
Substation:	132/33kV Phuntsholthang Substation
Month:	Jan-22

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping		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)		Protecton Relay Optd	Fault Details (As recorded by relay)			
1	132/33kV Transformer-II (10MVA)	132kV	Transient Fault	13-01-2022	16:03	13-01-2022	16:07		4	0.49	86A and 86B	(DPHLPDOC1) Trip value; L1: 3.6A,L2:159.6 A,L3:156.15 A,Le:0.00 A.	rer current and Earth fa	Unknown	Charged
2	132/33kV Transformer-I (10MVA)	132kV	Transient Fault	26-01-2022	11:14	26-01-2022	11:17		3	0.23	86A and 86B	(DPHLPDOC1) Trip value; L1: 5.1A,L2:323.4A,L3:318.3 A,Le:0.00 A.	rer current and Earth fa	Unknown	Charged
3	132/33kV Transformer-II (10MVA)	132kV	Trip On Fault	28-01-2022	08:30	28-01-2022	08:32		2	0.92	86A and 86B	(DPHLPDOC1) Trip value; L1:68.1 A,L2:4.2A,L3:71.25A,Le:0.00 A.	rer current and Earth fa	Unknown	Charged

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	Reasons of Fault	Relay Operations	Fault Location(KM)	Type of outages	Remarks
1. 400/220/132/33kV Jigmeling Substation													
i) 66kV Above													
1	26.01.2022	18:39 hrs	26.01.2022	18:47 hrs	0	36.52	132kV Tingtibi	Tingtibi	Main 1; Relay General Trip, B phase trip Line loop B-G	SIPROTEC 7SA52	Distance: 42.8 km	Transient	
2. 220/66/33kV Dhajay Substation													
i) 66kV and above													
1	12.01.2022	05:38:20hrs	12.01.2022	05:51:32hrs		-16.96	Jigmeling feed	Dhajay St	o/c	Main -I=IA=1.76kA, IB=1.59kA, IC=1.57kA. main-2, Ia=0157.01A, Tripped			feeder restored after as per BPSO instruction.

February 2022

Division:	SMD DEOTHANG
Substation:	132/33/11kV Kilikhar Substation
Month:	Feb-22

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)		Protecton Relay Optd	Fault Details (As recorded by relay)			
132kV Feeders															
1	132KV/Connec	132KV	Tripped	05-02-2022	12:43hrs	05-02-2022	12:50hrs	0	7	3.420	Nil	Nil	Tripped		Tripped from Kurichu end
2	132kV Corlung	132KV	Tripped	05-02-2022	14:13Hrs	07-02-2022	19:10 hrs	52	57	10.368	Distance protection relay	Start Phase: CN, Trip Phase: ABC, Distance 4.342KM towards Corlung SS, IA=3.228A, IB=0.00A, IC=5623A, Zone 1.	Tripped		Tripped due to heavy snowfall (conductor snapped at Kurila Location KK 28 Y phase & KK 31 B phase)
3	132kV Corlung	132KV	Tripped	08-02-2022	14:29Hrs	08-02-2022	18:12hrs	3	42	8.923	NA	Nil	Shutdown	Maintenance of CVT	Shutdown Taken by Corlung incharge to Maintenance work for CVT

Division:	SMD DEOTHANG
Substation:	132/33/11kV Kanglung Substation
Month:	Feb-22

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping		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)		Protecton Relay Optd	Fault Details (As recorded by relay)			
	132kV														
1	5MVA Transformer - I	132kV	Tripped	09.02.2022	10:59	09.02.2022	11:08	0	9	1.992	NA	NA	Due to out going feeder(UDZORONG)	NA	Both 5MVA transformer got tripped as line fault with Udzorong feeder.
	5MVA Transformer - II	132kV	Tripped	09.02.2022	10:59	09.02.2022	11:08	0	9	1.932	NA	NA	Due to out going feeder(UDZORONG)	NA	Both 5MVA transformer got tripped as line fault with Udzorong feeder.
2	132KV Corlung	132kV	Tripped	21.02.2022	2:20	21.02.2022	2:44	0	24	-4.248	NA	NA	Guide fail from Kurichhu	NA	Guide fail from Kurichhu
	5MVA Transformer -I	132kV	Tripped	22.02.2022	7:45	22.02.2022	9:08	1	23	2.271	NA	NA	Due to out going feeder(UDZORONG)	NA	5MVA transformer I got tripped as line fault with Udzorong feeder. Tripping coil burned and replaced

Division:	SMD DEOTHANG
Substation:	132/33/11kV Nanglam Substation
Month:	Feb-22

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 Operated	Tripping Details: Fault Details (As recorded by relay)	Type/Cause of Fault	Reason for Shutdown	Remarks
132kV Feeders															
1	Nangkor-Deothang Line	132kV	Tripping	01-02-2022	15:26 hrs	01-02-2022	15:37 hrs	0	10	16.7	MICOMP14DB & Distance relay	*Directional -O/C & E/F Relay* : Start Ø BN, tripped Ø N,O/C start I>1, E/F1 start IN1>12, trip IN1>2 VAB=82.38kV, VBC=82.52kV,VCA=126.1kV,VAN=68.69kV,VBN=19.78kV,VCN=73.99kV,VN=0.01A=49.35A,IB=1.067kA,IC=96.91A, IND.derived=11.101kA. IN measured=1.101kA & tripping relay 86 operated at our end. *Distance relay*: Start Ø BN, fault duration=209.8ms, relay trip time=0.000, fault location=36.69KM, IA=50.40A, IB=1.070kA, IC=1.007A, VAN=66.55kV, VBN=32.89kV VCN=66.29kV, fault resistance=1.011Ω, fault zone-Zone 3	Tripped on fault			Informed to BPSO, and charged the feeder as per their instruction
2	5MVA Transformer-I, 132/22/11kV	132kV	Tripping	04-02-2022	19:06 hrs	04-02-2022	19:11 hrs	0	5	1.3	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Wamrong feeder
3	5MVA Transformer-I 132/22/11kV	132kV	Tripping	05-02-2022	07:32 hrs	05-02-2022	07:36 hrs	0	4	0.78	Non directional IDMT PROTN Relay operated	Non dir.O/C relay-50A & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Wamrong feeder
4	5MVA Transformer-II, 132/22/11kV	132kV	Tripping	05-02-2022	07:32 hrs	05-02-2022	07:35 hrs	0	3	0.55	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped due to feeder fault	-	Tripped due to fault on 33kV Wamrong feeder.
5	5MVA Transformer-I, 132/22/11kV	132kV	Tripping	05-02-2022	08:53 hrs	05-02-2022	08:56 hrs	0	3	0.47	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped due to feeder fault	-	Tripped while test charging Wamrong feeder
6	5MVA Transformer-II, 132/22/11kV	132kV	Tripping	05-02-2022	08:53 hrs	05-02-2022	08:55 hrs	0	2	0.58	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped due to feeder fault	-	Tripped while test charging Wamrong feeder
7	5MVA Transformer-I, 132/22/11kV	132kV	Tripping	05-02-2022	10:21 hrs	05-02-2022	10:23 hrs	0	2	0.99	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped due to feeder fault	-	Tripped while due to fault on Tsebar feeder
8	5MVA Transformer-II, 132/22/11kV	132kV	Tripping	05-02-2022	10:21 hrs	05-02-2022	10:22 hrs	0	1	1.25	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped due to feeder fault	-	Tripped while due to fault on Tsebar feeder
9	5MVA Transformer-II, 132/22/11kV	132kV	Tripping	05-02-2022	15:32 hrs	05-02-2022	15:35 hrs	0	3	1.09	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped due to feeder fault	-	Tripped while test charging Wamrong feeder
10	Nangkor-Nganglam	132kV	Tripping	06-02-2022	06:46 hrs	06-02-2022	06:53 hrs	0	7	-12.45	MICOMP14DB	*Directional -O/C & E/F Relay* Tripped Ø N : Start Ø AN,O/C start I>1, E/F1 start IN1>12, trip IN1>2 VAB=104.5kV, VBC=133.4kV,VCA=107.1kV,VAN=47.16kV,VBN=75.69kV,VCN=74.78kV, VN=0.00,IA=600.5A,IB=89.91A,IC=77.26A, IN Desked=565.0A, IN measured=565.1A & tripping relay 86 operated at our end.	Tripped on fault	-	Informed to BPSO, and charged as per their instruction
11	5MVA Transformer-II, 132/22/11kV	132kV	Tripping	06-02-2022	16:05 hrs	06-02-2022	16:07 hrs	0	2	0.86	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped due to feeder fault	-	Tripped while test charging Wamrong feeder
12	5MVA Transformer-II, 132/22/11kV	132kV	Tripping	20-02-2022	17:37 hrs	20-02-2022	17:55 hrs	0	8	1.49	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped due to feeder fault	-	Tripped due to fault on 33kV Wamrong, Yurung & Namang feeders
14	Main Grid(Rangia Grid)	132kV	Tripping	21-02-2022	02:22 hrs	21-02-2022	02:45 hrs	0	23	7.3	-	-	-	-	Supply failed from Rangia Substation
15	Nangkor-Nganglam Line	132kV	Tripping	25-02-2022	16:17 hrs	25-02-2022	16:30 hrs	0	13	-7.22	MICOMP14DB & Distance Relay	*Directional -O/C & E/F Relay* Tripped Ø N : Start Ø BCN,O/C start I>1, E/F1 start IN1>12, trip IN1>2 VAB=108.8kV, VBC=69.76kV,VCA=105.8kV,VAN=74.6kV,VBN=43.78kV,VCN=44.14kV, VN=0.00,IA=29.94A,IB=853.2A,IC=828.2A, IN Desked=592.4A, IN measured=592.1A & tripping relay 86 operated at our end. *Distance relay Indication* : Start Ø BC, TOC start, Tripped Elerts-No. Fault alarm-No. fault duration-126.9sec, relay trip time-0.00, IA 31.25A, IB-860.2A, IC-851.7A, VAN-74.62kV, VBN-43.86kV, VCN-44.07kV, fault zone-zone.	Tripped on fault	-	Informed to BPSO, and charged the feeder as per their instruction

Division:	SMD DEOTHANG
Substation:	132/33/11kV Nganglam Substation
Month:	Feb-22

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 Operated	Tripping Details: Fault Details (As recorded by relay)	Type/Cause of Fault	Reason for Shutdown	Remarks
132kV															
2	Nganglam-Tingkhi	132kV	Tripping	05.02.2022	15:13	05.02.2022	15:49	0	36	-24.48	Micom relay/P442	IA= 15.77A IB= 1.314A IC= 1.328A Tripped on Zone 1 Fault Location 28.20km	Over Current		Supply normalized with vide Closing code# 1221 issued by Madam Tshering Choden, BPSO .
3	Nganglam-Tingkhi	132kV	Tripping	06.02.2022	06:49	07.02.2022	19:09	36	20	-18.74	Micom relay/P442	IA= 748.7A IB= 90.39A IC= 136.1A Ire= 833.4ATripped on Zone 3 Fault Location 297.19km	Earth Fault/Conductor Snapped		Feeder Test charged at 07:00hrs from our end as per BPSO instruction with vide closing code# 1227 issued by Madam Karma Yangdon,BPSO but Tingkhi end observed one phase is missing at their end(R-PH) and around we received a call saying that conductor is Snapped at Pathang site and immediately the CB was hand tripped from our end and informed to BPSO. The supply was normalised after completing the restringing of Conductor with vide closing code# 1238 issued by Madam Choden
5	3MVA Transformer	132kV	Tripping	20.02.2022	19:32	20.02.2022	19:39		6	1.427		Tripped due to 33kV Pathang feeder fault	Earth Fault		
6	Nangkhor-Nganglam	132kV	Grid Fail	21.02.2022	02:22	21.02.2022	02:45	0	23		NA	NA	Grid Fail		Grid fail from Nangkhor end since the station is feede fr om single source as Nganglam-Tingkhi feeder is under shutdown.

Division:	SMD DEOTHANG
Substation:	132/33kV Motanga Substation
Month:	Feb-22

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping		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 Oprd	Fault Details (As recorded by relay)			
1	Deothang Feeder	132kV	Tripping	02-02-2022	15:29:00 PM	02-02-2022	15:39:00 PM	0	10	-15.47	OC on B-phase, EF, 86 A & B operated	–	transient fault	–	–
2	Rangia Feeder	132kV	Tripping	02-02-2022	15:29:00 PM	02-02-2022	15:59:00 PM	0	30	-12.09	OC,Ef and 86A/B operated	–	transient fault	–	Charged the feeder with a charging code 1089 from BPSO(Bhutan), NLDC(India) 52 and NERLDC(India) 28
3	DME Factory Feeder	132kV	Tripping	02-02-2022	15:29:00 PM	02-02-2022	19:50:00 PM	4	21	0	86A & 86B OPTD	–	transient fault	–	Charged from BPSO instruction verbally
4	DME Factory Feeder	132kV	Tripping	03-02-2022	21:22:00 PM	03-02-2022	21:27:00 PM	0	5	0	–	–	transient fault	–	Charged from BPSO instruction verbally
5	15 MVA, TR-1(HV)	132/33kV	Tripping	05-02-2022	6:02:00AM	05-02-2022	6:17:00AM	0	15	0	50/51 OC, SEF	–	transient fault	–	–
6	15 MVA, TR-1(LV)	132/33kV	Tripping	05-02-2022	6:02:00AM	05-02-2022	6:18:00AM	0	16	0	86A & 86B OPTD	–	transient fault	–	–
7	33kV Azsta feeder	33kV	Tripping	05-02-2022	6:22:00AM	05-02-2022	7:41:00AM	1	19	0	–	–		–	–
8	15 MVA, TR-1(HV)	132/33kV	Tripping	05-02-2022	8:26:00AM	05-02-2022	8:34:00AM	0	8	0	–	OC & Ef	transient fault	–	–
9	15 MVA, TR-1(LV)	132/33kV	Tripping	05-02-2022	8:26:00AM	05-02-2022	8:36:00AM	0	10	0	86A & 86B OPTD	OC & Ef	transient fault	–	–
10	33kV Azsta feeder	33kV	Tripping	05-02-2022	8:26:00AM	05-02-2022	9:56:00AM	1	30	0	–	OC & Ef		–	–
11	33kV Azsta feeder	33kV	Tripping	05-02-2022	9:58:00AM	05-02-2022	10:28:00AM	0	20	0	–	–		–	–
12	15 MVA, TR-1(HV)	132/33kV	Tripping	05-02-2022	10:58:00AM	05-02-2022	10:38:00AM	0	10	0	–	–	transient fault	–	–
13	15 MVA, TR-1(LV)	132/33kV	Tripping	05-02-2022	10:28:00AM	05-02-2022	10:40:00AM	0	12	0	–	–	transient fault	–	–
14	33kV Azsta feeder	33kV	Tripping	05-02-2022	10:28:00AM	05-02-2022	11:05:00AM	0	37	0	–	–	–	–	–
15	DME Factory Feeder	132kV	Tripping	06-02-2022	23:39	02-06-2022	20:02	8	23	0	86A & 86B OPTD	–	transient fault	–	Charged the feeder with a charging code 1228 from BPSO. Feeder kept shutdown as per BPSO instruction
16	Rangia Feeder	132kV	Tripping	21-02-2022	14:22	02-06-2022	14:44	0	22	-17.12	86A & 86B OPTD	OC & Ef	transient fault	–	Charged the feeder with a charging code 1231(BPSO), 2159(NLDC), 1447(NERLDC). Feeder kept shutdown.
17	15 MVA, TR-1(LV)	132/33kV	Tripping	21-02-2022	14:22	02-06-2022	14:48	0	26	0.03	–	OC & Ef	transient fault	–	–
18	Rangia Feeder	132kV	Tripping	25-02-2022	19:01	25-02-2022	19:23	0	22	-0.27	86A & 86B OPTD	OC & Ef	transient fault	–	Charged the feeder with a charging code 1258(BPSO), 2644(NLDC), 1780(NERLDC).

Division:	SMD DEOTHANG
Substation:	132/33kV Corhang Substation
Month:	Feb-22

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping		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 Oprd	Fault Details (As recorded by relay)			
7	132 kV Khilkhar-Corhang Feeder	132 kV	Trip on fault	05.02.2022	12:29 hrs	05.02.2022	12:58 hrs	0	29	-11.530	Distance Relay (P442)	**Distance Relay (P442)** operated on Zone 1 trip. Recorded fault values : Started phase-BC. Tripped phase-ACB. fault duration-49.97 ms. relay trip time-79.59ms, fault location-33.35 km, IA-39.096A, IB-497.4A,IC-556.8A,VAN-78.12 kV,VBN-39.16kV,VCN-87.25 kV			Informed to BPSO, and charged as per their instruction
8	132 kV Khilkhar-Corhang Feeder	133 kV	Trip on fault	05.02.2023	14:11 hrs	07.02.2022	19:07 hrs	28	56	-9.930	Distance Relay (P442) and Backup Relay (P14D)	**Distance Relay (P442)** operated on Zone 1 trip. Recorded fault values : Started phase-BN. Tripped phase-B. fault duration-49.97 ms. relay trip time-79.85ms, fault location-28.89 km, IA-25.46A,IB-606.6A,IC-0 1.6A, VAN-74.44 kV, VBN-14.65kV, VCN-77.39 kV. **Backup Relay (P14D)** : Started phase-BN, OC started I>1- 1, EF 1 start IN1>- 1, IA-25.01A, IB-595.5 A, IC-44.80 A, VAB-84.71KV, VBC-82.07 KV,VCA-133.0 KV, IN-581.1 A, VAN-74.22kV, VBN-14.53 kV, VCN-77.18 kV, VN-58.54 kV.	Conductor snaped in between location KK-28 & KK-29 and in between Location no KK-30 & KK-31		Test charge was done from khilkhar substation but line could not stand and line was kept shut down as per the instruction from BPSO.

Division:	SMD DEOTHANG
Substation:	132/33kV Phuntsholing Substation
Month:	Feb-22

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping		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 Oprd	Fault Details (As recorded by relay)			
1	132/33kV Transformer-I (10MVA)	132kV	Transient fault	05-02-2022	01:56	05-02-2022	02:00		4	0.14	86A and 86B	(DPHLPDOC1) Trip value, L1: 6A,L2:65.55A,L3:65.4 A,Ln:0.00 A.	ver current and Earth fa	Unknown	Charged
2	132/33kV Transformer-II (10MVA)	132kV	Transient fault	05-02-2022	19:27	05-02-2022	19:40		13	0.63	86A and 86B	(DPHLPDOC1) Trip value, L1: 331.8A,L2:340.5A,L3:672.6A,Ln:0.00 A.	Over current	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/lines Affected by the Fault	Reasons of Fault	Relay Operations	Fault Location(KM)	Type of outages	Remarks
i) 66kV Above													
1	08.02.2022	14:35 hrs	08.02.2022	15:37 hrs	1	-26.09	400kV Alipurduar line 1	Alipurduar SS	DTT	7SA52 & 7SA611			
2	08.02.2022	16:59 hrs				-25.6	400kV Alipurduar line 1	Alipurduar SS	DTT	7SA52 & 7SA612			
3	16.02.2022	20:31 hrs	16.02.2022	21:08 hrs	0	73.45	400kV Alipurduar line 2	Alipurduar SS	DTT	7SA52 & 7SA613			
4	17.06.2022	13:00 hrs				59.47	400kV Alipurduar line 2	Alipurduar SS	DTT trip on L123	7SA52 & 7SA614			
									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-Nanglam fdr	132kV Tingtibi-nanglam Line	Temporary fault	Distance protection relay:Start phase:BCN,Trip Phase:ABC,Zone-1,Fault Location:31.62Km.	31.62kM	Temporary	
2	06-02-2022	06:49	07-02-2022	19:08	0	19.08	132kV Tingtibi-Nanglam fdr	132kV Tingtibi-nanglam Line	Conductor sniped at TN-63&64	Distance protection relay:Start phase:AN,Trip Phase:ABC,Zone-1,Fault Location:11.45Km.	11.45	Line fault	

March 2022

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	Weather Condition during the Outage	Remarks
				Date	Time	Date	Time	(Hrs)	(Min)		Protection Relay Optd	Fault Details (As recorded by relay)				
132kV Feeders																
1	Corbag	132	Tripped	24-03-2022	14:50 hrs	24-03-2022	14:58 hrs		8	12.456	86	Relay Trip 80.27ms Fault duration 55.19ms IA 25.89A IB 14.00AIC 28.16A VAN 75.42kv VBN 78.41kv VCN 78.47kv Fault record Broken conductor	Transit Fault	NA	Clear	Tripped on O/C and E/F (Transit Fault)

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Naugkor Substation
Month:	Mar-22

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	Weather Condition	Remarks
				Date	Time	Date	Time	(Hrs)	(Min)		Protection Relay Optd	Fault Details (As recorded by relay)				
132kV Feeders																
1	5MVA Transformer-I 132/22/11kV	132kV	Tripping	14-03-2022	07:25 hrs	14-03-2022	07:30 hrs	0	5	0.61	Non directional IDMT PROTN Relay operated	Non directional O/C relay-50A & tripping relay 86 operated	Tripped on feeder fault	-	Clear	Tripped due to fault on 33kV Wamrong feeder
2	5MVA Transformer-II, 132/22/11kV	132kV	Tripping	14-03-2022	07:25 hrs	14-03-2022	07:27 hrs	0	2	0.43	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped on feeder fault	-	Heavy Rainfall	Tripped due to fault on 33kV Wamrong feeder
3	Naugkor-Deothang	132kV	Tripping	24-03-2022	12:40 hrs	24-03-2022	12:48 hrs	0	8	21.7	MiCOMP14DB	Directional -O/C & E/F Relay: Tripped Ø N : Start Ø CN,O/C start I>1, E/F1 start IN1>12, trip IN1>2.VAB=122.2kV, VBC=128.3kV,VCA=109.4kV,VAN=74.48kV VBN=76.25kV,VCN=63.66kV,IA=123.0A,IB=121.4A,IC=538.8A, INDerived=444.9A, IN measured=444.5A & tripping relay 86 operated at our end	Tripped on fault	-	Cloudy & Windy	Informed to BPSO, Thimphu & charged the feeder as per their instruction.

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Deothang Substation
Month:	Mar-22

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	Weather Condition	Remarks
				Date	Time	Date	Time	(Hrs)	(Min)		Protection Relay Optd	Fault Details (As recorded by relay)				
1	Deothang-Naugkhor line	132kV	Tripped	24.03.2022	12:40	24.03.2022	12:48	0	8	32.888	O/C and E/F at Naugkhor end	Nil	Grid fail	NA	Windy	At our end the breaker condition was in normal
2	Deothang-Montonga line	132kV	Tripped	24.03.2022	12:40	24.03.2022	12:45	0	6	30.88	O/C at Montonga end	Nil	Grid fail	NA	Windy	At our end the breaker condition was in normal

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Nganglam Substation
Month:	Mar-22

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	Present Condition	Remarks
				Date	Time	Date	Time	(Hrs)	(Min)		Protection Relay Optd	Fault Details (As recorded by relay)				
132kV																
1	Nganglam-Tingbhi	132kV	Tripping	14.03.2022	5:04	14.03.2022	12:38	7	34	-10.82	Micom relay/P442	IA -27.51A IB - 722.3A IC - 521.77A Fault Location 129km Zone 3 VAN - 76.48kV VBN - 42.20kV VCN 78.71kV Fault duration 198.2ms Relay Trip time 0s	Over Current/ Dlsc Insulator Punctured at Tingbhi Substation		Sunny	Supply restored after coordination to Tingbhi end as per closing code 1307 issued by Madam Kamna Chedem, BPSO.
2	Nganglam-Motanga	132kV		28.03.2022	15:49	-	-	-	-	-					Clear	Line Test charging as per the BPSO Closing codes/ 1362 issued by Madam Kamna Dema.

Division:	SMD-DEOTHANG
Substation:	132/33kV Motanga Substation
Month:	Mar-22

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	Present Condition	Remarks
				Date	Time	Date	Time	(Hrs)	(Min)		Protection Relay Optd	Fault Details (As recorded by relay)				
1	Deothang Feeder	132kV	Tripping	24-03-2022	12:40	24-03-2022	12:45	0	5	-31.89	OC, 86 A & B operated.	OC, 86 A & B operated.	transient fault	-	Sunny	the feeder was charged after obtaining the verbal instruction from BPSO.
2	Rangia Feeder	132kV	Tripping	24-03-2022	13:09:00 pm	24-03-2022	14:11:00 pm	1	2	2.45	OC, 86 A & B operated.	OC, 86 A & B operated.	transient fault	-	Normal	Charged the feeder with a charging code 1340 from BPSO(Bhutan), NLDC(India) 1788 and NRELDC(India) 4581.
3	15 MVA, TR. 1(HV)	132/33kV	Tripping	25-03-2022	17:08:00 PM	25-03-2022	17:10:00 PM	0	2	0.19	86A & 86B OPTD	OC, 86 A & B operated. REF protection trip, 50/51 tripand REF 615 protection trip.	transient fault	-	Normal	Charged from BPSO instruction verbally.
4	15 MVA, TR.HV)	132/33kV	Tripping	26-03-2022	0:29	26-03-2022	0:31	0	2	0.09	OC, 86A & 86B OPTD	over current and earth fault relay operated.	transient fault	-	Reinst	Charged from BPSO instruction verbally.
5	15 MVA, TR.(LV)	132/33kV	Tripping	20-03-2022	9:35:00AM	20-03-2022	9:41:00AM	0	6	0.21	86A & 86B OPTD	OC & EF	transient fault	-	Reinst	Transformer charged after verbal clearance from BPSO.

Division:	SMD-DEOTHANG
Substation:	132/33kV Corhang Substation
Month:	Mar-22

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	Present Condition	Remarks
				Date	Time	Date	Time	(Hrs)	(Min)		Protection Relay Optd	Fault Details (As recorded by relay)				
5	132 kV, 10 MVA Transformer-1	132/33 kV	Tripping	07.03.2022	22:07 hrs	07.03.2022	22:19 hrs	0	12	0.980	Differtial Relay (P643) and 86 A & 86B	Started Phase BC,Tirped phase BC, Diff procitection Start, Diff protection bias trip, Restricted EF start IREF>LV, Restricted EF Trip IREF>LV, Fault type Internal, System frequency 50.00, Fault duration 75.00ms, CB operated Time 65.00 ms, Relay Trip time 5.00 ms,IA -1 magnitude 5.218A, IB-1 magnitude 230.9 A, IC-1 Magnitude 226.9 A, IA-2 magnitude 0.00 A, IB-2 magnitude 0.00 A, IC-2 magnitude 433.6 mA, IA -3 magnitude 20.75 A,IB-3 magnitude 15.29 A, IC-3 magnitude 7.642 A, IA-HV magnitude 5.219 A, IB-HV magnitude 230.6 A, IC-HV magnitude 226.9 A, IA-LV magnitude 20.75, IB-LV magnitude 15.29, IC-LV magnitude 7.642 A, I2-HV magnitude 133.2 A, I2- LV magnitude 5.785 A, IN-HV mesnd mag 1.618 A, IN-LV mesnd mag 256.0 A, VAN magnitude 0.00 V,VBN 0.00 V,VCN 0.00V, V1 magnitude 130.3 kV, V1 magnitude 0.00V, V2 magnitude 0.00 V, VN derived mag 0.00 V, VAB magnitude 0.00 V, VBC magnitude 0.00 V, VCA magnitude 0.00 V, IA diff 0.995PU, IB diff 5.316 PU, IC diff 5.265 PU, IA bais 0.116 PU, IB bais 2.968 PU, IC bais 2.632 PU, REFLV HIZ Diff 166.3 A.	Transient fault		Clear	Test Charge was done stand

Division:	SMD-DEOTHANG
Substation:	132/33kV Phuentsholing Substation
Month:	Mar-22

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	Present Condition	Remarks
				Date	Time	Date	Time	(Hrs)	(Min)		Protection Relay Optd	Fault Details (As recorded by relay)				
1	132/33kV Transformer- II (10MVA)	132kV	Transient fault	01-03-2022	07:59	01-03-2022	08:01		2	0.97	86A and 86B	(DPHLPDOC1) Trip value: L1: 4.05A,L2: 148.2A,L3:144.15A,Lo:0.00 A	er current and Earth'fa	Unknown	Sunny	Charged
6	132/33kV Transformer- II (10MVA)	132kV	Transient fault	01-03-2022	08:42	01-03-2022	08:44		2	0.71	86A and 86B	(DPHLPDOC1) Trip value, L1: 232.2A,L2: 112.65A,L3:119.55A,Lo:0.00 A.	Over current	Unknown	Sunny	Charged
9	132/33kV Transformer- I (10MVA)	132kV	Transient fault	13-03-2022	05:50	13-03-2022	05:55		5	0.17	86A and 86B	(DPHLPDOC1) Trip value; L1:158.1A,L2:1.2A,L3:159.3A,Lo:0.00 A.	er current and Earth'fa	Unknown	clear	Charged
24	132/33kV Transformer- II (10MVA)	132kV	Transient fault	24-03-2022	19:47	24-03-2022	19:50		3	1.20	86A and 86B	(DPHLPDOC1) Trip value; L1: 171.15A,L2: 179.7A,L3:951A,Lo:0.00A.	Over current	Unknown	clear	Charged
27	132/33kV Transformer- II (10MVA)	132kV	Transient fault	24-03-2022	19:57	24-03-2022	20:00		3	1.2	86A and 86B	(DPHLPDOC1) Trip value: L1: 165.9A,L2: 173.7A,L3:939.75A,Lo:0.00A.	Over current	Unknown	clear	Charged
34	132/33kV Transformer- I (10MVA)	132kV	Transient fault	25-03-2022	14:57	25-03-2022	14:59		2	0.26	86A and 86B	(DPHLPDOC1) Trip value: L1:59.4A,L2:135 15A ,L3:104.1A,Lo:0.00 A	er current and Earth'fa	Unknown	Reinst	Charged
37	132/33kV Transformer- I (10MVA)	132kV	Transient fault	25-03-2022	15:29	25-03-2022	15:32		3	0.22	86A and 86B	(DPHLPDOC1) Trip value, L1:128.85A,L2:127.65A ,L3:1.35A,Lo:0.00 A.	er current and Earth'fa	Unknown	Reinst	Charged
40	132/33kV Transformer- II (10MVA)	132kV	Transient fault	25-03-2022	16:35	25-03-2022	16:39		4	0.26	86A and 86B	(DPHLPDOC1) Trip value; L1: 171.15A,L2: 179.7A,L3:951A,Lo:0.00A.	Over current	Unknown	Reinst	Charged
43	132/33kV Transformer- II (10MVA)	132kV	Transient fault	25-03-2022	19:27	25-03-2022	19:30		3	0.69	86A and 86B	(DPHLPDOC1) Trip value; L1: 168.75A,L2: 175.35A,L3:944.4A,Lo:0.00A.	Over current	Unknown	Reinst	Charged
46	132/33kV Transformer- II (10MVA)	132kV	Transient fault	26-03-2022	07:39	26-03-2022	07:42		3	0.57	86A and 86B	(DPHLPDOC1) Trip value: L1: 168.75A,L2: 175.35A,L3:944.4A,Lo:0.00A.	Earth Fault	Unknown	Sunny	Charged

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	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	14:35 hrs	08.02.2022	15:37 hrs	1	-26.09	400kV Alipurduar	Alipurduar SS	DTT	7SA52 & 7SA611		DTT	
2	08.02.2022	16:59 hrs				-25.6	400kV Alipurduar line 1	Alipurduar SS	DTT	7SA52 & 7SA612			
3	16.02.2022	20:31 hrs	16.02.2022	21:08 hrs	0	73.45	400kV Alipurduar line 2	Alipurduar SS	DTT	7SA52 & 7SA613			
4	17.06.2022	13:00 hrs				59.47	400kV Alipurduar line 2	Alipurduar SS	DTT trip on L123	7SA52 & 7SA614			
4. 132/33kV Tintibi Substation													
i) 66kV & Above													
1	05-02-2022	15:18	05-02-2022	15:52	0	24.77	132kV Tingtibi-Nanglam fdr	132kV Tingtibi-nanglam Line	Tempoary fault	Distance protection relay:Start phase:BCN,Trip Phase:ABC,Zone-1,Fault Location:31.62Km.	31.62kM	Tempoary	
2	06-02-2022	06:49	07-02-2022	19:08	0	19.08	132kV Tingtibi-Nanglam fdr	132kV Tingtibi-nanglam Line	Conductor sniped at TN-63&64	Distance protection relay:Start phase:AN,Trip Phase:ABC,Zone-1,Fault Location:11.45Km.	11.45	Line fault	

April 2022

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Kilkhar Substation
Month:	Apr-22

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)		Protecton Relay Opid	Fault Details (As recorded by relay)			
132kV Feeders														
1	132kV Kuricha I/C	132kV	Tripped	19-04-2022	21:08hrs	19-04-2022	22:24hrs	1	10.764			Tripped	Grid fail from Motanga end.	Supply normalised and extended from Phuntsholing end.
2	132kV Kuricha I/C	132kV	Tripped	22-04-2022	22:25hrs	22-04-2022	22:30hrs		12.384			Tripped	Grid fail from Rangjal end	Grid fail from Rangjal end
3	132kV Kuricha I/C	132kV	Tripped	22-04-2022	00.13 hrs	22-04-2022	00.16hrs		13.32			Tripped	Tripped from TingtibeNanglam	Tripped from TingtibeNanglam end
4	132kV Corlung	132kV	Tripped	29-04-2022	11.37hrs	29-04-2022	11.57hrs		2.432			Tripped	Grid fail	Grid fail from Corlung, Rangjia end

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Kanglung Substation
Month:	Apr-22

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 Opid	Fault Details (As recorded by relay)			
	132kV													
1	5MVA Transformer II	132kV	Tripping	15.04.2022	4:02	15.04.2022	4:15	0	0.465	tripping relay 86 operated	NA	Earth Fault	NA	transformer tripped due to heavy feeder fault on 11kV Khaling feeder
2	Corlong Incomer	132KV	Eastern Grid failed	19.04.2022	21:08	19.04.2022	22:24	1	-6.984	NA	NA	NA	NA	Whold Eastern Power Grid failed and later restored by extending the power from Indian Grid Via Rangia-Motanga
3	Corlong Incomer	132KV	Grid fail from Rangia	22.04.2022	22:20	22.04.2022	22:44	0	-8.604	Tripping relay 86 operated	NA	NA	NA	Grid fail from Rangia
4	Corlong Incomer	132KV	Tripping	22.04.2022	22:45	23.04.2022	0:36	1	-8.604	NA	NA	breaker charging problem at Corlong after the Grid fail from Rangia	NA	Supply fed from Phuntsholtang as the supply due to breaker problem at Corlong as after the grid fail from Rangia
5	Kanglung - Phuntsholtang	132KV	Tripping	22.04.2023	22:45	23.04.2022	0:19	1	7.218	NA	NA	breaker charging problem at Corlong after the Grid fail from Rangia	NA	Supply fed from Phuntsholtang as the supply due to breaker problem at Corlong as after the grid fail from Rangia
6	Kanglung - Phuntsholtang	132KV	Grid fail from Rangia	29.04.2022	11:58	29.04.2022	11:58	0	-5.562	NA	NA	NA	NA	Grid fail from Rangia
7	Kanglung - Phuntsholtang	132KV	Grid fail from Rangia	29.04.2023	12:02	29.04.2023	12:04	0	-5.76	NA	NA	NA	NA	Grid fail from Rangia
8	Kanglung - Phuntsholtang	132KV	Grid fail from Rangia	29.04.2022	14:49	29.04.2022	14:53	0	-10.656	NA	NA	NA	NA	Grid fail
9	Kanglung - Phuntsholtang	132KV	Grid fail from Rangia	29.04.2022	18:57	29.04.2022	19:20	0	13.158	NA	NA	NA	NA	Grid fail

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Nangkor Substation
Month:	Apr-22

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 Opid	Fault Details (As recorded by relay)			
132kV Feeders														
1	5MVA Transformer-I 132/22/11kV	132kV	Tripping	03-04-2022	01:05 hrs	03-04-2022	01:10 hrs	0	0.33	Non directional IDMT PROTN Relay operated	Non dir/O/C relay-50A & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Yurung feeder.
2	5MVA Transformer-II, 132/22/11kV	132kV	Tripping	03-04-2022	01:05 hrs	03-04-2022	01:11 hrs	0	0.17	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Yurung feeder.
3	Nangkor-Deothang Line	132kV	Tripping	04-04-2022	16:26 hrs	04-04-2022	16:34 hrs	0	44.5	MICOMP14DB	***Directional -O/C & E/F Relay*** Tripped Ø N : Start Ø CN,O/C start I>1, E/F1 start IN1>12, trip IN1>2 VAB=132.2kV, VBC=126.8kV,VCA=106.5kV,VAN=74.24kV,VBN=76.20kV,VCN=61.32kV,IA=183.8A,IB=187A,IC=681.9A, INDerived=525.6A, IN measured=525.1A & tripping relay 86 operated at our end.	Tripped on fault	-	Informed to BPSO, Thimphu & charged the feeder as per their instruction.
4	5MVA Transformer-I 132/22/11kV	132kV	Tripping	05-04-2022	15:28 hrs	05-04-2022	15:30 hrs	0	0.423	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Yurung feeder.
5	5MVA Transformer-II, 132/22/11kV	132kV	Tripping	05-04-2022	15:28 hrs	05-04-2022	15:31 hrs	0	0.26	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Yurung feeder.
6	5MVA Transformer-I 132/22/11kV	132kV	Tripping	08-04-2022	19:54 hrs	08-04-2022	19:57 hrs	0	0.58	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Tsebar feeder.
7	5MVA Transformer-II, 132/22/11kV	132kV	Tripping	08-04-2022	19:54 hrs	08-04-2022	20:15 hrs	0	0.58	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Tsebar feeder.
8	5MVA Transformer-I 132/22/11kV	132kV	Tripping	09-04-2022	21:40 hrs	09-04-2022	21:47 hrs	0	0.522	Non directional IDMT PROTN Relay operated	O/C relay-50A,50C & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Yurung feeder.
10	Nangkor-Nganglam Line	132kV	Tripping	09-04-2022	21:44 hrs	09-04-2022	21:50 hrs	0	-10.65	MICOMP14DB	***Directional -O/C & E/F Relay*** : Start Ø ABC,O/C start I>1,VAB=59.87kV, VBC=38.81kV,VCA=47.05kV,VAN=29.98kV,VBN=14.34kV,VCN=28.37kV,IA=866.3A,IB=1.993kA,IC=1.571kA, INDerived=786.8A, IN measured=739.1A & tripping relay 86 operated at our end.	Tripped on fault	-	Informed to BPSO, Thimphu & charged the feeder as per their instruction.
9	5MVA Transformer-I, 132/22/11kV	132kV	Tripping	09-04-2022	21:50 hrs	09-04-2022	21:59 hrs	0	0.522	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Wamrong feeder.
11	5MVA Transformer-I 132/22/11kV	132kV	Tripping	09-04-2022	22:13 hrs	09-04-2022	22:16 hrs	0	0.522	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Tsebar feeder.
12	5MVA Transformer-I, 132/22/11kV	132kV	Tripping	10-04-2022	00:29 hrs	10-04-2022	00:31 hrs	0	0.348	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Tsebar feeder.
13	5MVA Transformer-I, 132/22/11kV	132kV	Tripping	15-04-2022	00:28 hrs	15-04-2022	00:29 hrs	0	0.31	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Nanang feeder
14	5MVA Transformer-II, 132/22/11kV	132kV	Tripping	15-04-2022	00:28 hrs	15-04-2022	00:34 hrs	0	0.14	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Nanang feeder
15	5MVA Transformer-I, 132/22/11kV	132kV	Tripping	15-04-2022	01:05 hrs	15-04-2022	01:06 hrs	0	0.33	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Nanang feeder

16	5MVA Transformer-II, 132/22/11kV	132kV	Tripping	15-04-2022	01:05 hrs	15-04-2022	01:13 hrs	0	0.09	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated.	Tripped on feeder fault	-	Tripped due to fault on 33kV Nanang feeder
17	5MVA Transformer-I, 132/22/11kV	132kV	Tripping	15-04-2022	03:55 hrs	15-04-2022	03:56 hrs	0	0.249	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Tsebar feeder
18	5MVA Transformer-II, 132/22/11kV	132kV	Tripping	15-04-2022	03:55 hrs	15-04-2022	03:57 hrs	0	0.099	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Tsebar feeder
19	Nangkor-Ngangkm Line	132kV	Tripping	15-04-2022	03:55 hrs	15-04-2022	04:01 hrs	0	7.99	MiCOMP14DB & MiCOMP442	***Directional -O/C & E/F Relay*** : Start Ø CN,O/C start I>1, E/F1 start IN1>12.VAB=133.1kV, VBC=95.19kV,VCA=79.58kV,VAN=73.75kV,VBN=74.31kV,VCN=25.79kV,IA=90.25A,IB=132.6A,IC=1.501kA, INDerived=1.285kA, IN measured=1.280kA & tripping relay 86 operated at our end.***Distance Relay*** : Start Ø CN, trip Ø ABC. start element distance, TOC start, SOTF TOR trip, AR lock out shot>, 49.9 Hz, fault duration 70.12ms, relay trip time 80.4ms, fault location 16.62KM towards Ngangkm, Zone -1, fault resistance-7.864Ω & trip relay 86 operated at our end. IA-90.15A, IB-130.5A, IC-1.513kA, VCN-73.70kV, VBN-74.29kV, VCN-25.75kV.	Tripped on fault	-	Informed to BPSO, Thimphu & charged the feeder as per their instruction.
20	5MVA Transformer-I, 132/22/11kV	132kV	Tripping	15-04-2022	03:59 hrs	15-04-2022	04:01 hrs	0	0.249	Non directional IDMT PROTN Relay operated	O/C relay-50A,50C & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Wamrang feeder
21	5MVA Transformer-II, 132/22/11kV	132kV	Tripping	15-04-2022	03:59 hrs	15-04-2022	04:10 hrs	0	0.099	Non directional IDMT PROTN Relay operated	O/C relay-50A,50C & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Wamrang feeder
22	Nangkor-Deothang Line	132kV	Tripping	19-04-2022	21:08 hrs	19-04-2022	21:11 hrs	0	8.4	MiCOMP14DB & MiCOMP442	***Directional -O/C & E/F Relay*** : Start Ø N, Trip Ø N, E/F1 start IN1>12, trip IN1>2,VAB=12.41kV,VBC=73.35kV,VCA=75.96kV,VAN=13.29kV,VBN=12.65kV,VCN=63.17kV,IA=491.7A,IB=491.1A,IC=63.85A, INDerived=668.9A, IN measured=669.2A & tripping relay 86 operated at our end.***Distance Relay*** : Start Ø ABCN, start element distance, TOC start, trip alerts-no, fault alarms-no, fault duration-200.7ms, relay trip time -0.000s, fault location 35.96KM towards Deothang, Zone -3, fault resistance-3.229Ω & trip relay 86 operated at our end. IA-496.6A, IB-532.8A, IC-59.68A, VAN-23.26kV, VBN-20.11kV, VCN-53.81kV.	Tripped on fault	-	At the same Grid failed from Rangia.Informed to BPSO. Thimphu & CB closed from our end as per the instruction from their end. Supply received at 22:24 hrs via Motonga-Phuntsholthang-Kanglung Line.
23	Main Grid	132kV	Tripping	22-04-2022	22:23 hrs	22-04-2022	22:29 hrs	0	1.54	-	-	Tripped on fault	-	Grid failed from Ngagatan Substation and Motonga Substation
24	Nangkor-Ngangkm Line	132kV	Tripping	23-04-2022	00:12 hrs	23-04-2022	00:19 hrs	0	-0.39	MiCOMP14DB	***Directional -O/C & E/F Relay*** : Start Ø BCN, O/C start I>1, E/F1 start IN1>12.VAB=88.28kV,VBC=27.23kV,VCA=86.01kV,VAN=70.74kV,VBN=19.43kV,VCN=22.18kV,IA= 45.91A,IB=1.618kA,IC=1.398kA, IN Derived=1.327kA, IN measured=1.326kA & tripping relay 86 operated at our end	Tripped on fault	-	Informed to BPSO, Thimphu. At 00:16 hrs received supply via Motonga. Deothang & charged Nangkor-Ngangkm feeder from our end as per the instruction from BPSO.
25	Kuricho-Nangkor line	132kV	Tripping	27-04-2022	18:55 hrs	27-04-2022	18:57 hrs	0	-24.33	MiCOMP442	***Distance Relay*** : Start Ø ACN,trip Ø ABC start element distance, TOC start, Distance trip Z1, AR lockout shot>, fault duration-71.96ms, relay trip time: -80.33ms, fault location 17.52KM towards Kuricho,fault resistance-93.25mΩ & trip relay 86 operated at our end. IA-1.417kA, IB-120.5A, IC-1485kA, VAN-16.42kV, VBN-67.55kV, VCN-14.04kV.	Tripped on fault	-	Informed to BPSO & charged the feeder as per the instruction from their end.
26	5MVA Transformer-I 132/22/11kV	132kV	Tripping	27-04-2022	19:20 hrs	27-04-2022	19:23 hrs	0	0.86	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped due to feeder fault	-	Tripped due to fault on 33kV Tsebar feeder
27	5MVA Transformer-I 132/22/11kV	132kV	Tripping	27-04-2022	22:16 hrs	27-04-2022	22:21 hrs	0	0.387	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped due to feeder fault	-	Tripped while test charging. 33kV Tsebar feeder
28	5MVA Transformer-II 132/22/11kV	132kV	Tripping	27-04-2022	22:16 hrs	28-04-2022	18:23 hrs	20	0.150	Non directional IDMT PROTN Relay operated	O/C relay-50C & tripping relay 86 operated	Tripped due to feeder fault	-	Tripped while test charging 33kV Tsebar feeder. While charging LV side, continues spark was observed from Y Ø main Isolator to CB, and there after kept under shut down and charged after rectifying the problem.
29	Nangkor-Deothang	132kV	Tripping	29-04-2022	11:37 hrs	29-04-2022	12:01 hrs	0	35.60	MiCOMP14DB	***Directional -O/C & E/F Relay*** : Start Ø BCN, O/C start I>1, E/F1 start IN1>12.VAB=88.28kV,VBC=27.23kV,VCA=86.01kV,VAN=70.74kV,VBN=19.43kV,VCN=22.18kV,IA= 45.91A,IB=1.618kA,IC=1.398kA, IN Derived=1.327kA, IN measured=1.326kA & tripping relay 86 operated at our end	Tripped on fault	-	CB operated at our end at the instant of Grid failure. Informed to BPSO
30	Main Grid (Rangia Grid)	132kV	Tripping	29-04-2022	12:03 hrs	29-04-2022	12:04 hrs	0	35.60	-	-	Tripped on fault	-	Supply failed from Motonga Substation
31	Nangkor-Deothang line	132kV	Tripping	29-04-2022	17:55 hrs	29-04-2022	18:04 hrs	0	19.00	MiCOMP442	***Distance Relay*** : Start Ø ACN,trip Ø ABC start element distance, TOC start, Distance trip Z1, AR lockout shot>, fault duration-65.02ms, relay trip time -80.02ms, fault location 17.06KM towards Deothang ,fault resistance-991.8mΩ & trip relay 86 operated at our end. IA-1.299kA, IB-1.306kA, IC-1.322kA, VAN-10.3kV, VBN-9.690kV, VCN-9.437kV.	Tripped on fault	-	Informed to BPSO, Thimphu and closed the CB as per the instruction from their end
32	5MVA Transformer-I 132/22/11kV	132kV	Tripping	29-04-2022	18:14 hrs	29-04-2022	18:15 hrs	0	0.71	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Nanang feeder
33	5MVA Transformer-II 132/22/11kV	132kV	Tripping	29-04-2022	18:14 hrs	29-04-2022	21:17 hrs	3	0.5	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Nanang feeder. Charged after weather subsided to normal.
34	5MVA Transformer-II 132/22/11kV	132kV	Tripping	29-04-2022	18:50 hrs	29-04-2022	18:53 hrs	0	0.71	Non directional IDMT PROTN Relay operated	O/C relay-50A & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Yurung feeder.

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Deothang Substation
Month:	Apr-22

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			Protecton Relay Opid	Fault Details (As recorded by relay)			
1	Deothang-Motonga line	132kV	Tripping	04.04.2022	16:26	04.04.2022	16:29	0	42.732	O/C at Motonga end	Nil	NA	NA	Grid fail and at our end Breaker was in normal condition
2	Deothang-Nangkor line	132kV	Tripping	04.04.2022	16:26	04.04.2022	16:34	0	44.136	O/C and E/F at Nangkor End	Nil	NA	NA	Grid fail and at our end Breaker was in normal condition
3	Deothang-Nangkhor line	132kV	Tripping	09.04.2022	21:43	09.04.2022	21:46	0	-47.016	Directional relay opt.	IA-784.2A, IB-1.110kA, IC-1.5kA & N-238.14	Unknown	NA	Feeder trip due to earth fault after getting information from BPSO ,test charge were done and stand sucessfully

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Nganglam Substation
Month:	Apr-22

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			Protecton Relay Opid	Fault Details (As recorded by relay)			
132kV														
1	Nganglam-Tingtibi	132kV	Tripping	02.04.2022	23:19	02.04.2022	23:59	0	-32.75	Micom relayP442	IA- 117.1A IB- 1.232KA IC- 82.92A IN- 1.422KA Zone 1 Fault location 30.54km Fault resistance 5.620 Ohms Fault duration 65.17ms Relay Trip Time 80.21ms A/R lock out	Earth Fault/Trosient Fault		Line restored after coodination to BPSO and Tingtibi substation
2	Nganglam-Tingtibi	132kV	Tripping	09.04.2022	21:44	09.04.2022	21:50	0	-31.89		Grid Fail	Grid Fail		
3	Nangkhor-Nganglam	132kV	Tripping	15.04.2022	03:55	15.04.2022	04:01	0	-9.82		Grid Fail	Grid Fail		
4	Nganglam-Tingtibi	132kV	Tripping	22.04.2022	08:01	22.04.2022	15:08	7	-19.11			Shutdown	Shutdown availed by Mr. Dawa Tshering, JE for changing flashover broken disc insulators at location TN# 196 TN# 199 & TN# 204 with vide SWITCH OFF code# 0548 issued by madam Krishna, BPSO and issued PTW No# 1794 to Mr. Dawa Tshering, TLMU Line Incharge Nganglam. Line normalized after returning of PTW by Mr. Dawa Tshering to Control Room with vide SWITCH ON code# 1051 issued by Madam Binita Rai, BPSO.	
5	Nganglam-Tingtibi	132kV	Tripping	22.04.2022	22:03	22.04.2022	22:13	0	-26.53	Micom relayP442	IA- 150.6A IB- 1.859KA IC- 1.782KA IN- 1.604KA Zone 1Fault location 26.79km	Shutdown		Normalized after coodination to BPSO and adjcent Substation
6	Nganglam-Tingtibi	132kV	Tripping	22.04.2022	22:23	22.04.2022	22:25	0	-26.53	Micom relayP442	IA- 16.54A IB- 18.35A IC- 18.24A VAN- 83.22kV VBN- 83.5kV VCN- 82.08kV A/R lockout	Over Voltage		
7	Nangkhor-Nganglam	132kV	Tripping	22.04.2022	22:22	22.04.2022	22:29	0	9.82	Micom relayP442	IA- 23.36A IB- 24.74A IC- 23.41A VAN- 83.31kV VBN- 83.59kV VCN- 82.05kV A/R lockout	Over Voltage		
8	Nganglam-Motanga	132kV	Tripping	22.04.2022	22:22	22.04.2022	09:45	11	19.1	REL650/REF615 opted	Line-1 Pre fault Mag- 0.1A pre fault Angle- -93.29deg Fault Mag- 0.33A Fault Angle- -37.48deg Line 2 preFault Mag- 0.07A Pre fault Angle- -24.93deg Fault Mag- 0.11A Fault- Mag- 44.37deg	Over Voltage		Line normalized after getting clear confirmation frm BPSO with vide closing code# 1056 issued by Madam Tshering Choden and coodination to Motanga end.
9	Nganglam-Tingtibi	132kV	Tripping	23.04.2022	00:12	23.04.2022	00:19	0	-10.09		Grid Fail	Grid Fail		
10	Nganglam-Tingtibi	132kV	Tripping	27.04.2022	17:11	27.04.2022	17:27	0	-31.45	Protecton Relay Opid	IA- 1.630KA IB- 283.2A IC- 1.466KA Fault location 4.861km Zone 1	Over Voltage		
11	Nganglam-Motanga	132kV	Tripping	27.04.2022	17:11	27.04.2022	17:15	0	23.94	REL650/REF615 opted	NA	Earth Fault/ Over current		

Division:	SMD-DEOTHANG
Substation:	132/33kV Motanga Substation
Month:	Apr-22

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 Opid	Fault Details (As recorded by relay)			
1	Deothang Feeder	132kV	Tripping	04-04-2022	16:26	04-04-2022	16:29	0	-43.05	OC, 86 A & B operated	OC, 86 A & B operated	transient fault	-	The feeder was charged after obtaining the verbal instruction from BPSO.
2	Rangia Feeder	132kV	Tripping	04-04-2022	16:26	04-04-2022	17:11	0	31.65	OC, 86 A & B operated	OC, 86 A & B operated	transient fault	_	Charged the feeder with a charging code 194 from BPSO(Bhutan), NLDC(India) 221 and NERLDC(India) 176
3	15 MVA, TR-1 (HV)	132/33kV	Tripping	04-04-2022	16:30	04-04-2022	16:33	0	0.12	86A & 86B OPTD	OC, 86 A & B operated. SEF protection operated.	transient fault	_	Charged from BPSO instruction verbally
4	Deothang Feeder	132kV	Tripping	09-04-2022	14:28	09-04-2022	14:31	0	-39.7	OC, 86A & 86B OPTD	over current and earth fault relay operated.	transient fault	_	Charged from BPSO instruction verbally
7	Rangia Feeder	132kV	Tripping	09-04-2022	14:28	09-04-2022	15:33	1	28.82	OC, 86A & 86B OPTD	over current and earth fault relay operated.	_	_	Charged the feeder with a charging code 1434 from BPSO(Bhutan), NLDC(India) 643 and NERLDC(India) 419. Long time taken for obtaining closing code from BPSO, hence more outage.
8	15 MVA, TR (HV)	132/33kV	Tripping	15-04-2022	16:57	15-04-2022	17:03	0	0.29	OC, 86A OPTD	SEF protection operated.	transient fault	_	Charged the transformer with closing code, 1012 from BPSO
9	Deothang Feeder	132kV	Tripping	19-04-2022	21:06	19-04-2022	21:14	0	-7.13	OC & EF, 86 A&B	Zone-1 trip on R & Y phase. 86A&B operated.	transient fault	_	Deothang feeder was charged with BPSO verbal instruction.
11	Rangia Feeder	132kV	Tripping	19-04-2022	21:06	19-04-2022	22:15	1	-16	OC, 86A & 86B operated	OC, 86A & 86B operated	_	_	At 21:06 hrs whole eastern grid failed, tripped Rangia & Deothang feeder on same time. Deothang feeder charged at 21:14hrs, at 21:40hrs Rangia feeder charge but did not hold due to faulty E/s indication at relay panel. Earth switch was rectified & CB spring charged. 21:58hrs - test charged Rangia feeder but still didnot hold. Hand tripped deothang & phuntshothang feeder to try for sectional charging, and charged Rangia feeder at 22:15hrs from our end with instruction from BPSO.
12	15 MVA, TR (HV)	132/33kV	Tripping	19-04-2022	22:15	19-04-2022	22:17	0	0.16	OC and E/f	OC, E/f and 86A relay operated	transient fault	_	Charged with BPSO verbal instruction.
13	15 MVA, TR (HV)	132/33kV	Tripping	20-04-2022	7:56	20-04-2022	8:01	0	0.22	OC and E/f, 86 A operated	OC and E/f, 86 A operated	transient fault	_	Charged the transformer with clearance received from BPSO verbally.
14	15 MVA, TR (HV)	132/33kV	Tripping	20-04-2022	9:01	20-04-2022	9:05	0	0.68	OC and E/f, 86 A operated	OC and E/f, 86 A operated	transient fault	_	Charged the transformer with clearance received from BPSO verbally.
15	15 MVA, TR (HV)	132/33kV	Tripping	20-04-2022	16:18	20-04-2022	16:26	0	0.12	OC and E/f, 86 A operated	OC and E/f, 86 A operated	transient fault	_	Charged the transformer with clearance received from BPSO verbally.
16	Nganglam	132kV	Tripping	22-04-2022	22:03	22-04-2022	22:10	0	-18.57	86 A & B operated	86 A & B operated	transient fault	-	The feeder was charged after obtaining closing code, 1052, from BPSO
17	Rangia Feeder	132kV	Tripping	22-04-2022	22:23	22-04-2022	22:54	0	17.61	OC, 86 A & B operated	OC, 86 A & B operated	transient fault	_	Charged the feeder with a charging code 1054 from BPSO(Bhutan), NLDC(India) 1184 and NERLDC(Ind) 1685
18	Nganglam Feeder	132kV	Tripping	22-04-2022	22:23	23-04-2022	7:45	9	-18.57	OC, 86 A & B operated	OC, 86 A & B operated	transient fault	_	The breaker was kept open from few hrs as per instruction from BPSO. Later it was charged at 7.45am on next day with closing code, 1056 by tshering cheden, BPSO.
19	Deothang Feeder	132kV	Tripping	27-04-2022	17:11	27-04-2022	17:13	0	-23.16	OC, E/f, 86 A & B operated	OC, E/f, 86 A & B operated	transient fault	_	charged by verbal instruction from BPSO
20	Nganglam Feeder	132kV	Tripping	27-04-2022	17:11	27-04-2022	17:15	0	-28.18	OC, E/f, 86 A & B operated	OC, E/f, 86 A & B operated	transient fault	_	charged by verbal instruction from BPSO
21	Deothang Feeder	132kV	Tripping	29-04-2022	11:36	29-04-2022	11:58	0	-54.19	OC, E/f, 86 A & B operated	OC, E/f, 86 A & B operated	transient fault	_	Verbal instruction obtained from Tshering cheden, BPSO & charged feeder
22	Rangia Feeder	132kV	Tripping	29-04-2022	11:36	29-04-2022	12:05	0	24.24	OC, E/f, 86 A & B operated	OC, E/f, 86 A & B operated	transient fault	_	At 11:36hrs grid failed. Deothang, Rangia/Nganglam feeder tripped due to oc & E/f.At 11:43hrs Nganglam CB test charged but did not hold. At 11:49hrs test charged Rangia feeder as per closing code, 1110(BPSO), 2187(NLDC) & 1500(NERLDC) but did not hold. At 11:58hrs Nganglam CB closed from motanga and grid restored. At 11:58hrs Deothang f/h charged, at 12:05hrs Rangia charged & at 12:27hrs Nganglam closed.
23	Nganglam Feeder	132kV	Tripping	29-04-2022	11:36	29-04-2022	12:27	0	-12.35	OC, E/f, 86 A & B operated	OC, E/f, 86 A & B operated	transient fault	_	closing code from BPSO was 1112 given by karma dema
24	Phuntshothang feeder	132kV	Tripping	29-04-2022	14:52	29-04-2022	15:02	0	-8.62	OC, E/f, 86 A & B operated	OC, E/f, 86 A & B operated	transient fault	_	closing code from BPSO was 1116 given by Pema Lhame.

Division:	SMD-DEOTHANG
Substation:	132/33kV Corhag Substation
Month:	Apr-22

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 Opid	Fault Details (As recorded by relay)			
1	132 kV Khilkhar Feeder and Kanglung Feeder	132 kV	Grid fail	19.04.2022	21.06 hrs	19.04.2022	22.32 hrs	1	-8.250	Nil	Nil	Grid fail		At 21:06 hrs there was no Incomming supply from khilkar substation due to grid and Corhag substation was blckout but no breaker tripping has occurred at Corhag substation.
2	132 kV Khilkhar -Corhag Line	132 kV	Tripping	22.04.2022	22:23 hrs	22.04.2022	22:37 hrs	0	-10.730	Distance Relay (P442)	Distance Relay (P442) operated on Over Voltage, Recorded fault values : Started phase-ABC, Tripped phase-ABC, Over Voltage start V > 1 2, Over Voltage Trip V>2, fault duration-2.496s, relay trip time-79.62 ms, IA-13.41A, IB-15.06A, IC-14.67A, VAN-83.13 kV, VBN-84.18 kV, VCN-82.47 kV, Fault in Zone: None	Over Voltage		132 kV Khilkhar-Corhag Line and 132 kV Corhag-Kanglung Line triped at 22:23 hrs on over Voltage. Both the line was charged as per the instruction from BPSO at 22:37 hrs and 22:43 hrs reapectively.
3	132 kV Corhag-Kanglung Line	132 kV	Tripping	22.04.2022	22:23 hrs	22.04.2022	22:43 hrs	0	9.950	Distance Relay (P442)	Distance Relay (P442) operated on Over Voltage, Recorded fault values : Started phase-ABC, Tripped phase-ABC, Over Voltage start V > 1 2, Over Voltage Trip V>2, fault duration-2.496s, relay trip time-79.62 ms, IA-13.41A, IB-15.06A, IC-14.67A, VAN-83.13 kV, VBN-84.18 kV, VCN-82.47 kV, Fault in Zone: None	Over Voltage		
4	132 kV Khilkhar -Corhag Line	132 kV	Tripping	22.04.2022	22:47 hrs	23.04.2022	0:23 hrs	1	-10.730	Distance Relay (P442)	Distance Relay (P442) operated on Over Voltage, Recorded fault values : Started phase-ABC, Tripped phase-ABC, Over Voltage start V > 1 2, Over Voltage Trip V>2, VT fail Alarm, V>1 Alarm, Frequency 50.02, fault duration-333.2 ms, relay trip time-79.96 ms, IA-12.83A, IB-14.76A, IC-13.73A, VAN-79.41kV, VBN-127.4 kV, VCN-80.30 kV, Fault in Zone: None	Over Voltage		132 kV Khilkhar-Corhag Line triped at 22:47 hrs on over Voltage.The line was charged as per the instruction from BPSO at 00:23 hrson 23.04.2022
5	132 kV Khilkhar Feeder and Kanglung Feeder	132 kV	Grid fail	29.04.2022	11:36 hrs	29.04.2022	11:57 hrs	0	-3.510	Nil	Nil	Grid fail		At 11:36 hrs there was no Incomming supply from khilkar substation due to grid and Corhag substation was blckout but no breaker tripping has occurred at Corhag substation.
6	132 kV Khilkhar Feeder and Kanglung Feeder	132 kV	Grid fail	29.04.2022	12:02 hrs	29.04.2022	12:06 hrs	0	-3.920	Nil	Nil	Grid fail		At 12:02 hrs there was no Incomming supply from khilkar substation due to grid and Corhag substation was blckout but no breaker tripping has occurred at Corhag substation.
7	132 kV Khilkhar Feeder and Kanglung Feeder	132 kV	Triped from Khilkhar SS	29.04.2022	14:49 hrs	29.04.2022	14:53 hrs	0	-11.590	Nil	Nil	Triped at Khilkhar Substation		At 14:49 hrs132 kV Khilkhar-Corhag line was triped at Khilkhar Substation and Corhag substation was blckout but no breaker tripping has occurred at Corhag substation.

Division:	SMD-DEOTHANG
Substation:	132/33kV Phuntsholthang Substation
Month:	Apr-22

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 Opid	Fault Details (As recorded by relay)			
1	132/33kV Transformer-II (10MVA)	132kV	Transient fault	02-04-2022	05:56	02-04-2022	05:59		0.37	86A and 86B	(DPHLPDOC1) Trip value; L1: 80.6A, L2: 39.6A, L3: 84A, Ln: 0A.	r current and Earthf fa	Unknown	Charged
2	132/33kV Transformer-II (10MVA)	132kV	Transient fault	04-04-2022	18:00	04-04-2022	18:07		0.64	86A and 86B	(DPHLPDOC1) Trip value; L1: 151.05A, L2: 29.65A, L3: 144.9A, Ln: 0A.	Over current	Unknown	Charged
3	132/33kV Transformer-II (10MVA)	132kV	Transient fault	06-04-2022	02:42	06-04-2022	02:46		0.21	86A and 86B	(DPHLPDOC1) Trip value; L1: 53.25A, L2: 119.7A, L3: 105.2A, Ln: 0A.	r current and Earthf fa	Unknown	Charged
4	132/33kV Transformer-II (10MVA)	132kV	Transient fault	09-04-2022	16:46	09-04-2022	16:50		0.58	86A and 86B	(DPHLPDOC1) Trip value; L1: 40.35A, L2: 81.75A, L3: 55.05A, Ln: 0A.	Earthf fault	Unknown	Charged
5	132/33kV Transformer-II (10MVA)	132kV	Transient fault	10-04-2022	17:20	10-04-2022	17:24		0.46	86A and 86B	(DPHLPDOC1) Trip value; L1: 40.35A, L2: 81.75A, L3: 55.05A, Ln: 0A.	Earthf fault	Unknown	Charged
6	132/33kV Transformer-II (10MVA)	132kV	Trip on fault	12-04-2022	09:50	12-04-2022	09:53		0.44	86A and 86B	(DPHLPDOC1) Trip value; L1: 191.4A, L2: 4.2A, L3: 195A, Ln: 0A.	r current and Earthf fa	Unknown	Charged
7	132/33kV Transformer-II (10MVA)	132kV	Trip on fault	13-04-2022	12:56	13-04-2022	12:58		0.53	86A and 86B	(DPHLPDOC1) Trip value; L1: 53.25A, L2: 10.2A, L3: 55.8A, Ln: 0A.	Over current	Unknown	Charged
8	132/33kV Transformer-II (10MVA)	132kV	Trip on fault	13-04-2022	14:25	13-04-2022	14:28		0.29	86A and 86B	(DPHLPDOC1) Trip value; L1: 53.7A, L2: 33.6A, L3: 73.05A, Ln: 0A.	Earthf fault	Unknown	Charged
9	132/33kV Transformer-II (10MVA)	132kV	Trip on fault	14-04-2022	18:28	14-04-2022	18:30		0.62	86A and 86B	(DPHLPDOC1) Trip value; L1: 181.5A, L2: 184.5A, L3: 366.15A, Ln: 0A.	Earthf fault	Unknown	Charged
10	132/33kV Transformer-II (10MVA)	132kV	Trip on fault	15-04-2022	01:35	15-04-2022	01:38		0.56	86A and 86B	(DPHLPDOC1) Trip value; L1: 45.6A, L2: 86.4A, L3: 40.8A, Ln: 0A.	Over current	Unknown	Charged
11	132/33kV Transformer-II (10MVA)	132kV	Trip on fault	15-04-2022	03:01	15-04-2022	03:09		0.06	86A and 86B	(DPHLPDOC1) Trip value; L1: 170.85A, L2: 171.3A, L3: 342.15A, Ln: 0A.	Over current	Unknown	Charged
12	132/33kV Transformer-II (10MVA)	132kV	Trip on fault	15-04-2022	03:35	15-04-2022	03:39		0.06	86A and 86B	(DPHLPDOC1) Trip value; L1: 180.6A, L2: 181.2A, L3: 361.8A, Ln: 0A.	Over current	Unknown	Charged
13	132/33kV Transformer-I(10MVA)	132kV	Transient fault	16-04-2022	01:59	16-04-2022	02:06		0.19	86A and 86B	(DPHLPDOC1) Trip value; L1: 132.45A, L2: 130.95A, L3: 1.35A, Ln: 0A.	Earthf fault	Unknown	Charged
14	132/33kV Transformer-II (10MVA)	132kV	Trip on fault	16-04-2022	18:25	16-04-2022	18:30		0.86	86A and 86B	(DPHLPDOC1) Trip value; L1: 161.25A, L2: 170.4A, L3: 331.8A, Ln: 0A.	Over current	Unknown	Charged
15	132/33kV Transformer-II (10MVA)	132kV	Trip on fault	17-04-2022	21:40	17-04-2022	21:44		0.64	86A and 86B	(DPHLPDOC1) Trip value; L1: 164.7A, L2: 169.2A, L3: 334.05A, Ln: 0A.	Over current	Unknown	Charged
16	132/33kV Transformer-II (10MVA)	132kV	Trip on fault	19-04-2022	14:53	19-04-2022	14:57		0.54	86A and 86B	(DPHLPDOC1) Trip value; L1: 45.6A, L2: 86.4A, L3: 40.8A, Ln: 0A.	Over current	Unknown	Charged
17	132/33kV Transformer-II (10MVA)	132kV	Trip on fault	19-04-2022	15:27	19-04-2022	15:29		0.08	86A and 86B	(DPHLPDOC1) Trip value; L1: 47.85A, L2: 58.35A, L3: 18A, Ln: 0A.	Over current	Unknown	Charged
18	132kV Motanga	132kV	Grid Fail	22-04-2022	22:25	22-04-2022	23:33	1	7.43	Nil	Nil	Nil	Grid Fail	Grid Fail at 22:25, however at first breaker are all normal but at 22:30 breaker got open and after receving information from BPSO,test changed the line,but line didnot withstand and spring got discharged and due to abnormal weather took time to reset.After reseting and receving information from BPSO, line charged at 23:33.
19	132kV Kanglung	132kV	Grid Fail	22-04-2022	22:25	22-04-2022	23:37	1	8.19	Nil	Nil	Nil	Grid Fail	Grid Fail at 22:25, however at first breaker are all normal but at 22:33 breaker got open and after receving information from BPSO, line charged at 23:37.
20	132/33kV Transformer-II (10MVA)	132kV	Trip on fault	24-04-2022	13:33	24-04-2022	13:36		0.56	86A and 86B	(DPHLPDOC1) Trip value; L1:263.7A, L2:127.8A, L3:135.9A, Ln: 0A.	Over current	Unknown	Charged
21	132/33kV Transformer-II (10MVA)	132kV	Trip on fault	24-04-2022	13:39	24-04-2022	13:42		0.56	86A and 86B	(DPHLPDOC1) Trip value; L1: 52.2A, L2:57.45A, L3:24.6A, Ln: 0A.	Over current	Unknown	Charged
22	132/33kV Transformer-II (10MVA)	132kV	Transient fault	29-04-2022	13:01	29-04-2022	13:03		0.57	86A and 86B	(DPHLPDOC1) Trip value; L1: 52.2A, L2:57.45A, L3:24.6A, Ln: 0A.	Earth fault	Unknown	Charged
23	132kV Kanglung	132kV	Trip on fault	29-04-2022	19:03	29-04-2022	19:22		7.56	89A and 89B	(DPHLPDOC1)Zone-1OPTD (R,Y,B Phase trip) Trip value; L1: 1733.03A , L2: 1766.32A, L3: 1628.4A,Ln: 0A	Zone-1OPTD (R,Y,B Phase trip)	Unknown	Zone-1OPTD (R,Y,B Phase trip) at the distance of 14.45 Km and line charge at 19:22 with charging code#1120 issued by state: Penm Lhamo(BPSO).
24	132/33kV Transformer-II (10MVA)	132kV	Trip on fault	29-04-2022	19:12	29-04-2022	19:14		1.07	86A and 86B	(DPHLPDOC1) Trip value; L1: 74.25A, L2: 113.55A, L3: 60.15A, Ln: 0A.	Over current	Unknown	Charged
25	132/33kV Transformer-II (10MVA)	132kV	Trip on fault	29-04-2022	19:22	29-04-2022	19:23		1.07	86A and 86B	(DPHLPDOC1) Trip value; L1: 154.2A, L2: 288.75A, L3: 134.55A, Ln: 0A.	Over current	Unknown	Charged
26	132/33kV Transformer-I (10MVA)	132kV	Trip on fault	29-04-2022	19:16	29-04-2022	19:18		0.44	50 and 86OPTD	(DPHLPDOC1) Trip value; L1: 97.8A, L2: 101.7A, L3: 52.05A, Ln: 0A.	Over current	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/lines Affected by the Fault	Reasons of Fault	Relay Operations	Fault Location(KM)	Type of outages	Remarks
i) 66kV Above													
1	04.04.2022	05:33 hrs	04.04.2022	06:03 hrs	0	171.62 MW	400kV Interim circuit 2	Alipurduar Substation	L1 to Ground and Over current , IA=1.18KA	main 1 = Rph pick up		Transient Fault	
2	06.04.2022	05:20 hrs	06.04.2022	05:57 hrs	0	160.17 MW	400kV Interim circuit 2	Alipurduar Substation	L1- Ground, Zone 1, Over current , IA=0.96KA	Main 2 and Main 1 pick up, Rphase to ground	Fault Distance: Main 2(dist)=190.7km, Main 1(dist)=B190.5km	Transient Fault	
3	10.04.2022	00:30 hrs	10.04.2022	00:55 hrs	0	125.08 MW	400kV Interim circuit 2	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(161.7 km), Main 2 Fault dist(161.5)		
4	14.04.2022	19:28 hrs				52.36	400kV Interim circuit 2	Alipurduar Substation	YBph 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	3:00	0	83.4	400kV Interim circuit 1	Alipurduar Substation	Rph-G	Main-1; Ground Pickup . Main-2: RYBph pick up and Fault loop R-G.	Main 2 Fault dist 136.2 km	t as per following Charging code: NLDC Bhutan: 1005, NLI	
6	22.04.2022	23:15 hrs	22.04.2022	0:00	0	116.35	400kV MHEP Line-4	Jigmeling SS and Alipurduar SS	Bph-G Fault current main -1&2 fault current 5.8kA	Main 1 optd ,Fault Loop(Bph to Ground) , Zone 1 optd. Main 2 optd ,Fault Loop(Bph to Ground) Zone 1 optd.	Fault dist(16.1 km) Fault dist(13.2),		Line auto reclosed
7	27.04.2022	17:11hrs	28.04.2022	18:58 hrs	25	101.5MW	500MVA ICT	Jigmeling SS	R&B phase operated	Differentail relay operated			
8	22.04.2022	21:14 hrs	22.04.2022	21:22 hrs	0	57.520	220kV Tsirang	Dhajey SS	L3-G	Main 2: Fault Loop Bph to Ground, Z1 Trip. Ib=1.91kA	Fault dist 39.3km.	Transient	**Line restored as per BPSO closing code: 1052, Tsherin Choden**
9	22.04.2022	21:14 hrs	22.04.2022	21:26 hrs	0	-13.81	220kV Dagap	agapela S	L2-L3-G	Main 1 optd, Z1 Trip, Fault Loop(L2-L3 and ground),	Fault dist(36.km) Fault current Ia=0.20ka Ib=4.91ka Ic=2.50ka	Transient	
10	27.04.2022	17:11hrs	27.04.2022			-34.09	400/220kV ICT	Jgmeling SS					
2. 220/66/33kV Dhajay Substation													
i) 66kV and above													
1	22.04.2022	21:14hrs	22.04.2022	21:22hrs		56.52	Tsirang-Jigmeling	Dhajay Substation	Main 1- Ia=0.13kA, Ib=0.76KA, Ic=1.47KA with distance 15.5KM. Main 2- Ia=160.28A, Ib=834.37A, Ic=1455.55A, In=1012.99A	Distance relay Main 1&2(21.1&21.2)	Line segment	Tripped	Feeder restored after confirmation.
2	22.04.2022	23:30hrs	22.04.2022	23:43hrs		54.1	Tsirang-Jigme	Dhajay St	Main 2- Ia=220.5	Distance relay Main 2(21.2)	Line segment	Tripped	Feeder restored after confirmation.

4. 132/33kV Tintibi Substation

i) 66kV & Above

1	02-04-2022	23:19	02-04-2022	23:29	0	13.130	132kV Tingbi	132kV Ti	Tempoary Fault	Distance Relay:Start Phase:BN,Trip Phase:ABC,Fault zone-1 trip,Fault location:28.86kM.	28.86kM	Tempoary	
2	09-04-2022	21:19	09-04-2022	21:55	0	12.600	132kV Tingbi	132kV Ti	Tempoary Fault	Distance Relay:Start Phase:ABC,Trip Phase:ABC,Fault zone-1 trip,Fault location:54.28kM.	54.28kM	Tempoary	
3	09-04-2022	22:38	09-04-2022	22:47	0	3.670	132kV Tingbi	132kV Ti	Tempoary Fault	Distance Relay:Start Phase:AN,Trip Phase:ABC,Fault zone-1 trip,Fault location:30.75kM.	30.75kM	Tempoary	
4	09-04-2022	23:00	09-04-2022	23:07	0	9.720	132kV Tingbi	132kV Ti	Tempoary Fault	Distance Relay:Start Phase:ABCN,Trip Phase:ABC,Fault zone-1 trip,Fault location:12.80kM.	12.80kM	Tempoary	
5	10-04-2022	17:11	11-04-2022	17:17	0	12.890	132kV Tingbi	132kV Ti	Tempoary Fault	Distance Relay:Start Phase:AB,Trip Phase:ABC,Fault zone-1 trip,Fault location:31.53kM.	31.53kM	Tempoary	
6	15-04-2022	05:54	15-04-2022	04:05	0	-1.220	132kV Tingbi	132kV Ti	Tempoary Fault	Distance Relay:Start Phase:CN,Trip Phase:ABC,Fault zone-1 trip,Fault location:51.83kM.	51.83kM	Tempoary	
7	16-04-2022	01:55	16-04-2022	02:10	0	4.900	132kV Tingbi	132kV Ti	Tempoary Fault	Distance Relay:Start Phase:AB,Trip Phase:ABC,Fault zone-1 trip,Fault location:33.33kM.	33.33kM	Tempoary	
8	16-04-2022	02:10	20-04-2022	19:55	87	4.900	132kV Tingbi	132kV Ti	Conductor Snaped	Distance Relay:Start Phase:CN,Trip Phase:ABC,Fault zone-1 trip,Fault location:28.68kM.	28.68kM	Tempoary	Conductor Snaped/Broken
9	22-04-2022	22:03	22-04-2022	22:13	0	26.300	132kV Tingbi	132kV Ti	Tempoary Fault	Distance Relay:Start Phase:BCN,Trip Phase:ABC,Fault zone-1 trip,Fault location:33.82kM.	33.82kM	Tempoary	
10	22-04-2022	22:23	22-04-2022	22:25	0	26.340	132kV Tingbi	132kV Ti	Tempoary Fault	Distance Relay:Start Phase:AN,Trip Phase:ABC,Fault zone-1 trip,Fault location:54.02kM.	54.02kM	Tempoary	
11	23-04-2022	00:01	23-04-2022	00:20	0	0.474	132kV Tingbi	132kV Ti	Tempoary Fault	Distance Relay:Start Phase:BCN, Trip Phase:ABC,Fault zone-1 trip,Fault location:46.8kM.	46.8kM	Tempoary	
12	25-04-2022	08:21	25-04-2022	08:39	0	9.720	132kV Tingbi	132kV Ti	Tempoary Fault	Distance Relay:Satrt element:no, Trip elts:NO,Fault zone-None,Over voltage triped	0	Tempoary	
13	25-04-2022	08:21	25-04-2022	08:41	0	0.310	3MVA transf	3MVA tr	Over current	Over current (251A)	0	Tempoary	
14	25-04-2022	08:21	25-04-2022	08:42	0	0.240	3MVA transf	3MVA tr	Over current	Over current (251C)	0	Tempoary	
15	27-04-2022	17:11 Hrs	27-04-2022	17:29	0	38.800	132kV Tingbi	132kV Ti	Tempoary Fault	Distance Relay:Start Phase:ACN,Trip Phase:ABC,Fault zone-1 trip,Fault location:40.37kM.	40.37kM	Tempoary	

5. 132/33kV Yurmoo Substation

i) 66kV & Above

1	22.04.2022	0.919444444	22.04.2022	0.92291667	0	-10.7	132kV Tingbi	132kV Yurmoo Ss	Nill	Tingtibi ss		Supply was failed from Tingtibi ss
2	23.04.2022	0.009027778	23.04.2022	0.01388889	0	-11.8	132kV Tingbi	132kV Yurmoo Ss	Nill	Tingtibi ss		Supply was failed from Tingtibi ss
3	25.04.2022	0.349305556	25.04.2022	0.35763889	0	-11.4	132kV Tingbi	132kV Yurmoo Ss	Nill	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	19:08hrs	13	8.17	220/33kV 10	Dagapela	Earth fault	Trip Relay optd,buch trip, SEF optd, I	Dagapela Substation	Transient Fault	Cable termination got burned and F

May 2022

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Time		Normalization Time		Duration of Outage (Hrs)	MW before Outage (MW)	Tripping Details		Type/Cause of Fault	Reason for Shutdown	Remarks
				Date	Time	Date	Time			Protection Relay Optd	Fault Details (As recorded by relay)			
132kV Feeders														
14	132KV Kanchu	132KV	Tripped	18-05-2022	09:47hrs	18-05-2022	09:51hrs	0	21.852	Nil	Nil	Tripped	Grid Fail	Grid fail From Motanga ,Rangya And Tingbi

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Kanglung Substation
Month:	May-22

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Time		Normalization Time		Duration of Outage (Hrs)	MW before Outage (MW)	Tripping Details		Type/Cause of Fault	Reason for Shutdown	Remarks
				Date	Time	Date	Time			Protection Relay Optd	Fault Details (As recorded by relay)			
	132kV													
5	Ceehang	132	Grid fail	18.05.2022	21:48	18.05.2022	21:50	0	-17.964	NA	NA	Grid Fail	NA	Grid fail

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Nangkor Substation
Month:	May-22

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Time		Normalization Time		Duration of Outage (Hrs)	MW before Outage (MW)	Tripping Details		Type/Cause of Fault	Reason for Shutdown	Remarks
				Date	Time	Date	Time			Protection Relay Optd	Fault Details (As recorded by relay)			
132kV Feeders														
1	Nangkor-Ngangkam Line	132kV	Tripping	07-05-2022	16:25 hrs	07-05-2022	16:37 hrs	0	3.24	MICOMP14DB	*Directional -O/C & E/F Relay:* Tripped Ø N : Start Ø N. E/F1 start IN1>1, trip IN1>1 VAB=106.8kV, VBC=100.8kV VCA=170.27kV VAN=45.57kV,VBN=73.36kV,VCN=46.38kV,IA=423.3A,IB =14.10A,IC=147.9A, INDerived=326.9A, IN measured=325.9A & tripping relay 86 operated at our end.	Tripped on fault	-	Informed to BPSO, Thimphu & charged the feeder as per their instruction.
5	Main Grid	132kV	Tripping	18-05-2022	21:48 hrs	18-05-2022	21:51 hrs	0	-	-	-	Grid fail	-	Supply failed form Ngangkam SS & Motanga SS.

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Deothang Substation
Month:	May-22

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Time		Normalization Time		Duration of Outage (Hrs)	MW before Outage (MW)	Tripping Details		Type/Cause of Fault	Reason for Shutdown	Remarks
				Date	Time	Date	Time			Protection Relay Optd	Fault Details (As recorded by relay)			
1	Gomdar line	33kV	Tripping	30.04.2022	18:15	01.05.2022	11:25	17	0.156	O/C	IA=808.2A,IB=801.6A,IC=2.304A,IN=284.0A	Conductor snaped at Viewpoint	NA	Line charged as per line maintenance team & line got stand
14	Motanga Line	132kV	Tripping	18.05.2022	21:48	18.05.2022	21:55	0	32.256	E/F and O/C at Motanga end	Nil	E/F and O/C	NA	Grid fail and at our end breaker was in normal.

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Nganglam Substation
Month:	May-22

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 Optd	Fault Details (As recorded by relay)			
132kV														
1	Nganglam-Tingkhi	132kV	Tripping	07.05.2022	16:25	07.05.2022	16:34	0	-27.49	Micom relayP442	IA- 1.113KA IB- 138.9A IC- 1.113KA VAN- 37.97kV VBN- 76.97kV VCN- 38.1kV Fault location 104.3km Relay Trip Time 941.6ms Fault resistance 1.737Ohms Trip Phase ABC A/R lockout Zone 2	Overcurrent		Supply restored after coodination to BPSO & Tingkhi end.
2	Nganglam-Motanga	132kV	Tripping	07.05.2022	16:25	07.05.2022	16:45	0	20.08	Mincom relay REF650 REL615	L1 Fault Mag 104.48A/ -0.45deg L2 Fault Mag 95.44A/-121.61deg L3 Fault Mag 105.58A/125.02deg IN Fault Mag 228.0A/173.31deg	Earth Fault		Supply restored after coodination to BPSO & Motanga end.
4	Nganglam- Nangkhor	132kV	Tripping	15.05.2022	20:08	15.05.2022	20:22	0	-7.13	Mincom relay REF650 REL615	IA=86.51A IB=1.278kA IC=131.1A, IN=1.063kA VAN=90.58kV VBN= 85.78kV VCN=127.5kV, 86operated, Trip Phase ABC, fault distance-Zone 2 Trip, fault location 38.59kms, fault Resistance 5.056 ohms.	Overcurrent		Supply restored after coodination to BPSO & Nangkhor end.
5	Nganglam-Motanga	132kV	Tripping	15.05.2022	20:08	15.05.2022	20:23	0	18.7	Mincom relay REF650 REL615	86A operated. L1-Fault mag = 9.16A / -95.05deg, L2 - Fault mag = 8.76A / -36.03deg, L3 - Fault mag = 7.67A / -158.52deg, IN - Fault mag = 45A / 153.91deg	Earth Fault		Supply restored after coodination to BPSO & Motanga end.
6	3MVA TR- II	132kV	Tripping	16.05.2022	07:32	16.05.2022	16:37	0	0.936	O/C & E/F Relay	Tripped due to 33kV DCCL feeder fault	O/C & E/F		33kV DCCL feeder CB not Operated and made hand tripped.
7	3MVA TR- II	132kV	Tripping	17.05.2022	21:19	17.05.2022	21:27	0	0.837	Micom relayP442	86A operated. No fault recorded	NA		
8	Nganglam-Motanga	132kV	Tripping	18.05.2022	21:49	18.05.2022	22:34	0	29.23	Mincom relay REF650 REL615	86A operated. L1-Fault mag = 19A / 168.73deg, L2 - Fault mag = 13A / 41.33deg, L3 - Fault mag = 05A / 74.48deg, IN - Fault mag = 19A / 113.77deg	Earth Fault		Supply restored after coodination to BPSO & Motanga end.
9	Nganglam-DCCL	132kV	Tripping	24.05.2022	13:00	24.05.2022	13:01	0	6.97	No relay is Operated	No fault is recorded	Under Voltage		Feeder tripped at their end due to under voltage, the supply was normalized by opening Motanga- Rangia line

Division:	SMD-DEOTHANG
Substation:	132/33kV Motanga Substation
Month:	May-22

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 Optd	Fault Details (As recorded by relay)			
1	Rangia Feeder	132kV	Tripping	06-05-2022	23:25	07-05-2022	0:14	0	34.02	OC, 86 A & B operated.	OC, 86 A & B operated.	transient fault	-	Charged the feeder with a charging code 1155 from BPSO(Bhutan), NLDC(India) 489 and NERLDC(India) 1852
3	Nganglam Feeder	132kV	Tripping	07-05-2022	16:25	07-05-2022	16:42	0	-20.01	OC, 86 A & B operated.	OC, 86 A & B operated.	transient fault	_	The feeder was charged after obtaining the verbal instruction from BPSO.
4	Rangia Feeder	132kV	Tripping	13-05-2022	12:29	13-05-2022	12:45	0	28.33	86A & 86B OPTD	OC, 86 A & B operated.	transient fault	_	Charged the feeder with a charging code 0619hrs from BPSO(Bhutan), NLDC(India) 601 and NERLDC(India) 1980
5	Nganglam Feeder	132kV	Tripping	15-05-2022	20:10	15-05-2022	20:24	0	-18.11	over current trip	OC, 86 A & B operated.	transient fault	_	Charged after getting verbal instruction from BPSO.
7	Deothang Feeder	132kV	Tripping	18-05-2022	21:48	18-05-2022	21:55	0	32.99	over current trip	OC, 86 A & B operated.	transient fault	_	Charged after getting verbal instruction from BPSO.
8	Rangia Feeder	132kV	Tripping	18-05-2022	21:48	18-05-2022	22:20	0	50.15	OC, 86A & 86B OPTD	over current and earth fault relay operated.	transient fault	_	Charged the feeder with a charging code 0619hrs from BPSO(Bhutan), NLDC(India) 601 and NERLDC(India) 1980
9	Nganglam Feeder	132kV	Tripping	18-05-2022	21:48	18-05-2022	22:33	0	30.13	OC, 86A & 86B OPTD	over current and earth fault relay operated.	_	_	Charged after getting verbal instruction from BPSO.

Division:	SMD-DEOTHANG
Substation:	132/33kV Corlong Substation
Month:	May-22

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 Optd	Fault Details (As recorded by relay)			
34	132 kV Khalikhar Feeder and 132 kV Kanglung feeder	132 kV	Grid fail	18.05.2022	21:48 hrs	18.05.2022	21:55 hrs	0	-19.650	Nil	Nil	Breaker triped at Khalikhar End		There was no 132 kV incomming supply from khalikhar due to grid fail but no breaker tripping has occurred at courlong end.

Division:	SMD-DEOTHANG
Substation:	132/33kV Phuntsholing Substation
Month:	May-22

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 Optd	Fault Details (As recorded by relay)			
8	132/33kV Transformer-I (10MVA)	132kV	Transient	07-05-2022	06:16	07-05-2022	06:20		0.34	50 and 86OPTD	(DPHLPDOC1) Trip value; L1: 170.25A, L2: 177.45A, L3: 347.4A, Ln: 0A.	Over current	Unknown	Charged
13	132/33kV Transformer-II (10MVA)	132kV	Transient fault	08-05-2022	02:28	08-05-2022	02:31		0.44	86A and 86B	(DPHLPDOC1) Trip value; L1: 43.05A, L2: 5.51A, L3: 99.75A, Ln: 0A.	Earthf fault	Unknown	Charged
16	132/33kV Transformer-II (10MVA)	132kV	Transient fault	08-05-2022	06:09	08-05-2022	06:11		0.97	86A and 86B	(DPHLPDOC1) Trip value; L1: 83.1A, L2: 33.75A, L3: 82.8A, Ln: 0A.	Over current	Unknown	Charged
20	132/33kV Transformer-II (10MVA)	132kV	Trip on fault	08-05-2022	18:44	08-05-2022	18:50		0.67	86A and 86B	(DPHLPDOC1) Trip value; L1:193.35 A, L2: 91.65A, L3: 101.7, Ln: 0A.	Over current	Unknown	Charged
25	132/33kV Transformer-II (10MVA)	132kV	Trip on fault	09-05-2022	20:07	09-05-2022	20:10		0.54	86A and 86B	(DPHLPDOC1) Trip value; L1:126.9 A, L2: 203.4A, L3: 123.4A, Ln: 0A.	Over current	Unknown	Charged
31	132/33kV Transformer-I (10MVA)	132kV	Transient fault	11-05-22	05:23	11-05-2022	05:26		0.27	86A and 86B	(DPHLPDOC1) Trip value; L1:369 A, L2: 360.3A, L3: 362.55A, Ln: 0A.	Over current	Unknown	Charged
36	132/33kV Transformer-II (10MVA)	132kV	Trip on fault	11-05-2022	12:44	11-05-2022	12:47		0.26	86A and 86B	(DPHLPDOC1) Trip value; L1:330.65 A, L2: 258.45A, L3: 127.67A, Ln: 0A.	Over current	Unknown	Charged
41	132/33kV Transformer-II (10MVA)	132kV	Transient fault	12-05-2022	05:59	12-05-2022	06:02		0.31	86A and 86B	Fault Value did not reflect on Relay (REF615)	Earthf fault	Unknown	Charged. DR did not triggered on Relay
45	132/33kV Transformer-II (10MVA)	132kV	Transient fault	12-05-2022	12:10	12-05-2022	12:14		0.29	86A and 86B	(DPHLPDOC1) Trip value; L1: 87.75A, L2: 1.8A, L3: 89.25A, Ln: 0A.	arthf fault and Overcurre	Unknown	Charged
51	132/33kV Transformer-II (10MVA)	132kV	Transient fault	14-05-2022	15:29	14-05-2022	15:32		0.47	86A and 86B	(DPHLPDOC1) Trip value; L1: 54.6A, L2: 51.15A, L3: 24.75A, Ln: 0A.	Earthf fault	Unknown	Charged
54	132/33kV Transformer-II (10MVA)	132kV	Transient fault	15-05-2022	01:57	15-05-2022	02:01		0.45	86A and 86B	(DPHLPDOC1) Fault value; L1: 130.5A, L2: 3A, L3: 133.2A, Ln: 0A.	arthf fault and Overcurre	Unknown	Charged
59	132/33kV Transformer-II (10MVA)	132kV	Transient fault	16-05-2022	04:26	16-05-2022	04:29		0.50	86A and 86B	Fault Value did not reflect on Relay (REF615)	Earthf fault	Unknown	Charged
63	132/33kV Transformer-II (10MVA)	132kV	Transient fault	17-05-2022	08:55	17-05-2022	08:58		0.62	86A and 86B	(DPHLPDOC1) Fault value; L1: 41.1A, L2: 96.15A, L3: 85.2A, Ln: 0A.	arthf fault and Overcurre	Unknown	Charged
71	132/33kV Transformer-II (10MVA)	132kV	Transient fault	18-05-2022	16:32	18-05-2022	16:37		0.45	86A and 86B	(DPHLPDOC1) Fault value; L1: 100.65A, L2: 122.1A, L3: 63.9A, Ln: 0A.	Earthf fault	Unknown	Charged
76	Kanglung (1K7LA)	132kV	Transient fault	18-05-2022	21:47	18-05-2022	22:06		15.66	86A and 86B	(OV2PTOV) Fault value; L1: 5.85A, L2: 7A, L3: 6.94A, Ln: 9.52A.	Over voltage & Under Voltage	Unknown	Coordination with BPSO and line charged after Voltage get Normalized.
81	132/33kV Transformer-II (10MVA)	132kV	Transient fault	21-05-2022	09:03	21-05-2022	09:06		0.48	86A and 86B	(DPHLPDOC1) Fault value; L1: 125.55A, L2: 129.75A, L3: 121.65A, Ln: 0A.	Over current	Unknown	Charged
92	132/33kV Transformer-II (10MVA)	132kV	Transient fault	23-05-2022	06:31	23-05-2022	06:33		1.03	86A and 86B	(DPHLPDOC1) Fault value; L1: 56.25A, L2: 33A, L3: 33A, Ln: 0A.	Earthf fault	Unknown	Charged
101	132/33kV Transformer-II (10MVA)	132kV	Transient fault	24-05-2022	15:30	24-05-2022	15:33		0.56	86A and 86B	Fault Value did not reflect on Relay (REF615)	Earthf fault	Unknown	Charged
122	132/33kV Transformer-II (10MVA)	132kV	Transient fault	29-05-2022	12:09	29-05-2022	12:10		0.43	86A and 86B	Fault Value did not reflect on Relay (REF615)	Earthf fault	Unknown	Charged
125	132/33kV Transformer-II (10MVA)	132kV	Transient fault	29-05-2022	19:31	29-05-2022	19:32		0.74	86A and 86B	(DPHLPDOC1) Trip value; L1:4.2A, L2: 64.2A, L3: 60.45A, Ln: 0A.	arthf fault & overcurrer	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/lines Affected by the Fault	Reasons of Fault	Relay Operations	Fault Location(KM)	Type of outages	Remarks
i) 66kV Above													
1	20.05.2022	22:48 hrs	20.05.2022	23:03 hrs	0	82.17	400/220kV ICT	Jigmeling Substation		Directional O/C & E/F Protection Relay optd (HV).			
2	21.05.2022	19:47 hrs	21.05.2022	19:54 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	11:41 hrs	1	-117.81	400kV MHPA Line-4	Jigmeling and Alipurduar SS	DTT trip for RYB phase	Distance Relay: SIPROTECT 7SA52 & 7SA611			
4	28-May-22	11:43 hrs	28-May-22	14:26 hrs	2		400kV MHPA 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 MHPA Line-4	Jigmeling and Alipurduar SS	DTT trip for RYB phase	Distance Relay: SIPROTECT 7SA52 & 7SA611			
1	11.05.2022	20:33hrs	11.05.2022	20:39hrs	0	44.23	220kV Tsirang feeder	Tsirang SS	Ground fault	Main -1 Y&B TRIP, Z1/Z1B tripped, Main -2Y&B TRIP, Z1/Z1B tripped	Fault Current Rph=0.15kA, Yph=4.99kA, Bph=4.85kA Main 1 fault dist=11.8km, Main 2 Fault Dist=11.82km		lightning &Rainning
4. 132/33kV Tintibi Substation													
i) 66kV & Above													
1	07-05-2022	16:25	07-05-2022	16:34	0	28.370	132kV Tingbi	132kV Ti	Tempoary Fault	Distance Relay:Start Phase:ACN,Trip Phase:ABC,Fault zone-1 trip,Fault location:9.99kM.	9.99kM	Tempoary	Closing Code:1159(BPSO)
2	15-05-2022	20:09	15-05-2022	20:15	0	28.870	132kV Tingbi	132kV Ti	Tempoary Fault	Distance Relay:Start Phase:ABC,Trip Phase:ABC,Fault zone-1 trip,Fault location:59kM.	59kM	Tempoary	
3	18-05-2022	21:47	18-05-2022	21:50	0	27.720	132kV Tingbi	132kV Ti	Tempoary Fault	Distance Relay:Start Phase:AN,Trip Phase:ABC,Fault zone-1 trip,Fault location:54.56kM.	54.56kM	Tempoary	
5. 132/33kV Yurmoo Substation													
i) 66kV & Above													
1	22.04.2022	0.919444444	22.04.2022	0.92291667	0	-10.7	132kV Tingbi	132kV Yurmoo Ss	Nill	Tingtibi ss			Supply was failed from Tingtibi ss
2	23.04.2022	0.009027778	23.04.2022	0.01388889	0	-11.8	132kV Tingbi	132kV Yurmoo Ss	Nill	Tingtibi ss			Supply was failed from Tingtibi ss
3	25.04.2022	0.349305556	25.04.2022	0.35763889	0	-11.4	132kV Tingbi	132kV Yurmoo Ss	Nill	Tingtibi ss			Supply was failed from Tingtibi ss

June 2022

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Kilikhar Substation
Month:	Jun-22

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Time		Normalization Time		Duration of Outage (Hrs)	MW before Outage (MW)	Tripping Details		Type/Cause of Fault	Reason for Shutdown	Remarks
				Date	Time	Date	Time			Protection Relay Optd	Fault Details (As recorded by relay)			
132kV Feeders														
1	Icommer Kurichu	132Kv	Shutdown	04-06-2022	09:19 hrs	04-06-2022	12:21 hrs	3	-20.556	Nil	Nil	To connected Bus transfer PT terminal	Shutdown	To connected Bus transfer PT terminal
2	Icommer Kurichu	132Kv	Tripped	09-06-2022	05:02 hrs	09-06-2022	05:20 hrs		-20.624	Nil	Nil	Grid fail form Rangia	Tripped	Grid fail from Rangia and Tingbit end

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Kanglung Substation
Month:	Jun-22

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Time		Normalization Time		Duration of Outage (Hrs)	MW before Outage (MW)	Tripping Details		Type/Cause of Fault	Reason for Shutdown	Remarks
				Date	Time	Date	Time			Protection Relay Optd	Fault Details (As recorded by relay)			
132kV														
1	132kV Corkung	132 kV	Trip	09.06.2022	05:01	09.06.2022	05:21	0	-17.424	NA	NA	Grid Fail	NA	Grid Fail
1	Corkung	132	Hand tripped	11.06.2022	15:08	11.06.2022	15:34	0	-17.38	NA	NA	NA	Transformer did not get trip when fault occur	Wild animal(Weasel) climb on 2.5MVA T/n CT.

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Nangkor Substation
Month:	Jun-22

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Time		Normalization Time		Duration of Outage (Hrs)	MW before Outage (MW)	Tripping Details		Type/Cause of Fault	Reason for Shutdown	Remarks
				Date	Time	Date	Time			Protection Relay Optd	Fault Details (As recorded by relay)			
132kV Feeders														
1	132/33kV, 5MVA Trf-II	132kV	Shut down	01-06-2022	09:34 hrs	01-06-2022	17:11 hrs	7	0.603	-	-	-	To carry out Painting of Transformer	Shut down taken by this Substation. No supply interrupted.
2	Nangkor-Ngangkam Line	132kV	Tripping	03-06-3033	03:21 hrs	03-06-2022	03:27 hrs	0	9.43	MiCOMP14DB	***Directional -O/C & E/F Relay***: Tripped Ø N : Start Ø ABCN, E/F1 start IN1>12, trip IN1>2.VAB=35.82kV, VBC=32.93kV,VCA=33.28kV,VAN=21.16kV,VBN=20.59kV,VCN=17.12kV,IA=771.5A,IB=830.6A,IC=856.1A, INDerived=98.19A, IN measured=96.96A & tripping relay 86 operated at our end. ***Distance Relay:*** Start Ø ABCN, start elements distance, TOC start, tripped alerts No. Fault alarms: No.Fault duration 275.7ms, Relay trip time:0.00s. Fault location 58.65KM towards Ngangkam, fault resistance:1.555Ω. IA=815.8A, IB=838.7A, IC=880.6A, VAN=21.92kV, VBN=21.36A, VCN=18.08kV.	Transient fault	-	Charged after informing BPSO, Thimphu
3	Nangkor-Ngangkam Line	132kV	Shut down	07-06-2022	08:36 hrs	07-06-2022	15:07 hrs	6	9.79	-	-	-	Shut down to carry out annual maintenance at their end	Approved shut down taken by SMD, Gcrop to carry out annual maintenance at Ngangkam Substation.
4	Main Grid	132kV	Tripping	09-06-2022	05:01 hrs	09-06-2022	05:22 hrs	0	-	-	-	Tripped on fault	-	Supply failed from Tsirbi & Motanga SS
5	Nangkor-Deothang Line	132kV	Tripping	09-06-2022	05:34 hrs	09-06-2022	05:35 hrs	0	28	MiCOMP14DB	***Directional -O/C & E/F Relay:*** Tripped Ø N : Start Ø AN, E/F1 start IN1>12, trip IN1>2.VAB=87.34kV, VBC=136.6kV,VCA=91.56kV,VAN=28.15kV,VBN=75.03V,VCN=73.96kV,IA=1.265kA,IB=125.6A,IC=133.3A, INDerived=1.007kA, IN measured=1.007kA & tripping relay 86 operated at our end.	Transient fault	-	Informed to BPSO & charged the feeder
6	132/33kV, 5MVA Trf-I	132kV	Tripping	18-06-2022	01:22 hrs	18-06-2022	01:24 hrs	0	0.18	Non directional IDMT relay optd	O/C relay-50A & trip relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Nanmg feeder
7	132/33kV, 5MVA Trf-II	132kV	Tripping	18-06-2022	01:22 hrs	18-06-2022	01:52 hrs	0	0.11	Non directional IDMT relay optd	O/C relay-50A & trip relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Nanmg feeder
8	132/33kV, 5MVA Trf-I	132kV	Tripping	18-06-2022	06:31 hrs	18-06-2022	06:33 hrs	0	0.291	Non directional IDMT relay optd	O/C relay-50A & trip relay 86 operated	Tripped on feeder fault	-	Tripped while test charging 33kV Wamrong feeder
9	132/33kV, 5MVA Trf-II	132kV	Tripping	18-06-2022	06:31 hrs	18-06-2022	06:34 hrs	0	0.129	Non directional IDMT relay optd	O/C relay-50A & trip relay 86 operated	Tripped on feeder fault	-	Tripped while test charging 33kV Wamrong feeder
10	132/33kV, 5MVA Trf-I	132kV	Tripping	27-06-2022	07:23 hrs	27-06-2022	07:25 hrs	0	0.606	Non directional IDMT relay optd	O/C relay-50A & trip relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Tsebar feeder
11	132/33kV, 5MVA Trf-II	132kV	Tripping	27-06-2022	07:23 hrs	27-06-2022	07:40 hrs	0	0.408	Non directional IDMT relay optd	O/C relay-50A & trip relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Tsebar feeder
12	132/33kV, 5MVA Trf-I	132kV	Tripping	28-06-2022	13:21 hrs	28-06-2022	13:24 hrs	0	0.456	Non directional IDMT relay optd	O/C relay-50A & trip relay 86 operated	Tripped on feeder fault	-	Tripped while test charging 33kV Nanmg feeder
13	132/33kV, 5MVA Trf-II	132kV	Tripping	28-06-2022	13:21 hrs	28-06-2022	13:25 hrs	0	0.264	Non directional IDMT relay optd	O/C relay-50A & trip relay 86 operated	Tripped on feeder fault	-	Tripped while test charging 33kV Nanmg feeder

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Deothang Substation
Month:	Jun-22

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 Optd	Fault Details (As recorded by relay)			
12	Nangkor-Deothang line	132kV	Tripping	09.06.2022	1:01	09.06.2022	1:24	0	-14.036	NA	Nil	Grid fail	NA	Grid fail from Rangia. Our end both the breaker is normal
13	Nangkor-Deothang line	132kV	Tripping	09.06.2022	1:34	09.06.2022	1:35	0	-14.036	NA	Nil	Grid fail	NA	Supply fail from Nangkor our end is normal
15	5MVA Transformer II (LV side)	132/33kv	Shutdown	09.06.2022	8:35	09.06.2022	12:05	4	0.678	NA	Nil	NA	shutdown for changing trip coil and other maintenance	Charged after the completion of work
40	5MVA Transformer II	132/33kV	Tripping	19.06.2022	4:48	16.06.2022	4:55	0	0.34	NA	Nil	Due to Rangtar line	NA	Test charge done and found normal

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Nganglam Substation
Month:	Jun-22

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Time		Normalization Time		Duration of Outage (Hrs)	MW before Outage (MW)	Tripping Details		Type/Cause of Fault	Reason for Shutdown	Remarks
				Date	Time	Date	Time			Protection Relay Optd	Fault Details (As recorded by relay)			
132kV														
1	Nganglam-Tintibi feeder	132kV	Tripping	03.06.2022	03:28	03.06.2022	03:32	0	25.96	Micom relay P442	IA- 1.992KA IB- 1.987kA IC- 12.127KA VAN- 10.87kV VBN- 10.28kV VCN- 5.491kV Fault location 22.09km Relay Trip Time 275.7ms Fault resistance 396.0Ohm Trip Phase ABC A/R lockout Zone 1	Overcurrent		Supply restored after coordination to BPSO & Tingtibi end.
2	Nganglam-Motanga feeder	132kV	Tripping	03.06.2022	03:26	03.06.2022	03:35	0	25.9	Micom relay REF650 REL615	L1 Fault Mag 114.82A/ 10.69deg L2 Fault Mag 116.3A/113.5deg L3 Fault Mag 110.99A/129.25deg IN Fault Mag 3.85A/170.87deg	Earth Fault		Supply restored after coordination to BPSO & Motanga end.
4	Nganglam-Tintibi feeder	132kV	Tripping	08.06.2022	12:06	08.06.2022	12:17	0	-35.08	Micom relay P442	IA= 1.736kA IB=1.849kA IC=1.789kA, VAN=10.28kV VBN= 10.12kV VCN=9.822kV, 86operated. Trip Phase ABC. Fault location 27.84kms, Zone =1, Fault Resistance 9.99m ohms, Fault duration 76.66, A/R Lock Out	Overcurrent		Supply normalised after coordination with Tingtibi Substation, and NLDC/BPSO (closing Code 1403 by karmachoden NLDC)
5	Nganglam-Tintibi feeder	132kV	Tripping	09.06.2022	03:34	09.06.2022	03:55	0	-26.48	Micom relay P442	IA= 1.795kA IB=203.5kA IC=1.767kA, VAN=17.89kV VBN= 79.86kV VCN=19.80kV, 86operated, Trip Phase ABC, Fault location 15.30kms, Zone =1, Fault Resistance 165.6m ohms, Fault duration 76.55ms	Overcurrent		Supply normalised after coordination with Tingtibi Substation, and NLDC/BPSO (closing Code 1411 by kezang wangmo NLDC)
6	Nganglam-Motanga feeder	132kV	Tripping	09.06.2022	08:59	09.06.2022	09:20	0	-28.48		L1 Fault Mag 125.64A/ 9.63deg L2 Fault Mag 127.34A/113.75deg L3 Fault Mag 77841.95A/119.35deg IN Fault Mag 1.81A/085.72deg	Earth Fault		Supply normalised after coordination with Motanga Substation, and NLDC/BPSO (Grid fail)
9	5MVA Tr-I	132kV	Tripping	15.06.2022	07:09	15.06.2022	07:20	0	0.917	Micom relay P442	NA	Earth Fault Tripped due to 33kV Drak GYP feeder fault		5MVA Tr. LV side CB closed at 07:11hrs. At 07:31hrs 5MVA Tr LV side CB closed and open LV side CB of 5MVA Tr-and kept in Idle Charged
10	5MVA Tr-I	132kV	Tripping	15.06.2022	08:51	15.06.2022	11:31	3	0.796	REL650/REF615 optd	Continuous shutdown is taken by Maintenance team to attend for LV side CT sparking and tightening of Nut & bolt	Tripped due to 33kV Dechenling feeder		5MVA Transformer was put in service at 08:54hrs(Both the Transformer are run in parallel in service)
13	Nganglam-Motanga feeder	132kV	Tripping	18.06.2022	19:01	18.06.2022	19:38	0	17.8	Micom relay REF650 REL615	Fault details: Zone 1 Fault Loop L1-L2 General trip R Y B Fault AbsDist. 22.993 Fault RelDist. 0.688 Recording Time 2.081s GR-A/B trip L1- 1154.04A L2- 1094.5A L3- 67.84A LN- 10.33A	Over Current(L1-L2)		At our end the CB is closed at 19:09hrs but from Motanga end they couldn't close and we have open CB at 19:15hrs at our end as per the BPSO's Instruction to close CB first from Motanga end. The CB is Closed at 19:38hrs from our end and the line was kept in Idle
14	Nganglam-Motanga feeder	132kV	Tripping	18.06.2022	20:01	19.06.2022	16:15	20	17.8	Micom relay REF650 REL616	Fault details: Zone 1 Fault Loop L1-L2 General trip R Y R Fault AbsDist. 22.652 Fault RelDist. 0.658 Recording Time 2.105s PF/BRC GR-A/B trip L1- 1774.34A L2- 1772.06A L3-7.43A LN- 1.59A	Over Current(L1-L2)		After clearing the Fault at location TN# 34 & TN# 35 by TMD and vide BPSO switch On code# 1592 the CB is closed at our end and withstood but from Motanga side they couldn't close. At 15:01hrs BPSO instructed us to open CB at our end to Closed first from their side but still they faces the same problem

Division:	SMD-DEOTHANG
Substation:	132/33kV Motanga Substation
Month:	Jun-22

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			Protecton Relay Optd	Fault Details (As recorded by relay)			
1	Nganglam Feeder	132kV	Tripping	#######	15:21	#######	15:38	0	-25.91	OC, 86 A & B operated.	OC, 86 A & B operated.	transient fault	-	The feeder was charged after obtaining the verbal instruction from BPSO.
2	15 MVA Transformer	132/33kV	Tripping	#######	14:37:00 pm	#######	14:40	0	2.43	OC, e/f and 86 A operated.	OC, earthfault and 86 A operated.	transient fault	-	-
4	15 MVA Transformer	132/33kV	Tripping	#######	14:27:00 pm	#######	14:32	0	1.92	o/c, ef, 86A and SEF protection operated.	o/c, ef, 86A and SEF protection operated.	transient fault	-	-
7	15 MVA Transformer	132/33kV	Tripping	#######	5:51	#######	6:20	0	0.17	OC, e/f and 86 A operated.	OC & earth fault relay operated.	-	-	-
8	15 MVA Transformer(LV)	33kV	Tripping	#######	5:51	#######	6:21	0	0.17	OC, e/f relay operated.	over current and earth fault relay operated.	transient fault	-	-
10	Rangia Feeder	132kV	Tripping	#######	5:57	#######	6:32	0	52.13	over current, earth fault & 86A operated.	over current, earth fault & 86A operated.	transient fault	-	Rangia feeder was charged with a closing code of NLDC(1402), NLDC, India(548) and NERLDC(3258.
11	Nganglam Feeder	132kV	Tripping	#######	3:34	#######	3:40	0	-30.1	over current, earth fault & 86A/B operated.	overcurrent, earthfault and 86A&B operated.	transient fault	-	charged the feeder with BPSO verbal instruction.
12	Rangia Feeder	132kV	Tripping	#######	5:01	#######	5:46	0	50.3	over current, earth fault & 86A/B operated.	overcurrent, earthfault and 86A&B operated.	-	-	Substation was blackout at 5:01hrs.Rangia and Nganglam feeder tripped. Rangia test charged at 5:17hrs, did not hold, Nganaglam test charged at 5:18hrs but didnot hold. As per BPSO instruction, hand tripped Deothang fdr at 5:19hrs, Silicon fdr at 5:20hrs & P/thang fdr at 5:21hrs. Rangia charged at 5:46hrs with codes, 1412, NLDC, 636(NLDC,India), NERLDC(3312. And charged other fdrs too simultaneously. Nganglam feeder was charged only at 6:31hrs thereby station supply normalised.
13	Nganglam Feeder	132kV	Tripping	#######	5:01	#######	6:31	1	-28.48	over current, earth fault & 86A/B operated.	overcurrent, earthfault and 86A&B operated.	-	-	Nganglam fdr test charged at 5:59hrs as per BPSO instruction but did not hold. Again test charged at 6:01hrs as per BPSO instruction but did not hold. Nganglam fdr charged at 6:31hrs.
14	Nganglam Feeder	132kV	Tripping	#######	19:03	#######	16:10	21	-18.58	over current, earth fault & 86A/B operated.	Zone -1 trip, R,Y & B Phase trip	-	-	The feeder was test charged at 19:11hrs but did not hold. Again test charged at 19:17hrs, 19:38hrs and 19:52 hrs but did not hold. Fault distance was shown by distance relay at 12.29km beyond Motanga substation. Upon line patrolling by TMD team next day, a tree was found fallen and hanging on the conductor. Tree was cleared and the line was charged.

Division:	SMD-DEOTHANG
Substation:	132/33kV Phuntsholing Substation
Month:	Jun-22

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 Optd	Fault Details (As recorded by relay)			
2	132/33kV Transformer-II (10MVA)	132kV	Transient fault	01-06-2022	11:52	01-06-2022	11:55		0.75	86A and 86B	(DPHLPDOC1) Trip value; L1:87.15A, L2:114.9A, L3: 87.3A, Ln: 0A.	Earth fault	Unknown	Charged
15	132/33kV Transformer-II (10MVA)	132kV	Transient fault	03-06-2022	09:57	03-06-2022	09:59		0.52	86A and 86B	Fault Value did not reflect on Relay (REF615)	Earth fault	Unknown	Charged
23	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	03-06-2022	23:47	03-06-2022	23:48		0.50	86A and 86B	(DPHLPDOC1) Fault value; L1: 121.05A, L2: 59.55A, L3:68.55A, Ln: 0A	Overcurrent	Unknown	Charged
28	132/33kV Transformer-II (10MVA)	132kV	Transient fault	05-06-2022	17:40	05-06-2022	17:42		0.63	86A and 86B	Fault Value did not reflect on Relay (REF615)	Earth fault	Unknown	Charged
36	132/33kV Transformer-II (10MVA)	132kV	Transient fault	07-06-2022	17:43	07-06-2022	17:46		0.58	86A and 86B	Fault Value did not reflect on Relay (REF615)	Earth fault	Unknown	Charged
44	132/33kV Transformer-II (10MVA)	132kV	Transient fault	11-06-2022	03:58	11-06-2022	04:06		0.47	86A and 86B	(DPHLPDOC1)Fault Value L1:173.4A; L2:341.7A; L3:368.3A; LN:0	Over current	Unknown	Charged
47	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	11-06-2022	16:58	11-06-2022	17:14		0.10	86A and 86B	(DPHLPDOC1)Fault Value L1:33.75A; L2:51.6A; L3:73.2A; LN:0	Earth fault	Unknown	Charged
51	132/33kV Transformer-I(10MVA)	132kV	Transient fault	11-06-2022	22:56	11-06-2022	22:59		0.26	86A and 86B	(DPHLPDOC1)Fault Value L1: 338.7A, L2: 347.7A,L3: 302.55A, LN: 0	Over current	Unknown	Charged
55	132/33kV Transformer-II (10MVA)	132kV	Transient fault	12-06-2022	01:52	12-0-22	01:54		0.47	86A and 86B	(DPHLPDOC1)Fault Value L1:96.15A; L2:59.1A; L3:53.85A; LN:0	Earth fault	Unknown	Charged
58	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	12-06-2022	09:40	12-0-22	09:43		0.64	86A and 86B	(DPHLPDOC1)Fault Value L1:211.4A; L2:77.25A; L3:81.3A; LN:0	Over current	Unknown	Charged
69	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	15-06-2022	09:46	15-06-2022	09:50		0.58	86A and 86B	(DPHLPDOC1) Fault value; L1: 45A, L2:60.45A, L3:23.1A,Ln: 0A.Test charge fault value;L1:45A,L2:59.7A,L3:21.3A,LN:0A	Earth fault	Unknown	Charged after isolating faulty feeder.
72	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	16-06-2022	09:57	16-06-2022	09:59		0.33	86A and 86B	(DPHLPDOC1) Fault value; L1:174.6 A, L2:946.5A, L3:171.9A,Ln: 0A.	Overcurrent	Unknown	Charged.
75	132/33kV Transformer-I(10MVA)	132kV	Trip on Fault	17-06-2022	11:21	17-06-2022	11:25		0.27	86A and 86B	(DPHLPDOC1) Fault value; L1: 163.2A, L2: 320.4A, L3: 156.75A,Ln: 0A.Test charge fault value;L1: 318.6A,L2: 326.65A,L3: 348.8,LN:0A	Over current	Unknown	Charged
78	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	18-06-2022	03:11	18-06-2022	03:17		0.23	86A and 86B	(DPHLPDOC1) Fault value; L1: 402.3 A, L2: 379.8A, L3: 385.35A,Ln: 0A	Overcurrent	Unknown	Charged.
83	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	19-06-2022	08:46	19-06-2022	08:49		0.46	86A and 86B	(DPHLPDOC1) Fault value; L1: 192.15A, L2:373.65A, L3:181.65A,Ln: 0A.Test charge fault value;L1:291.15A,L2:368.85A,L3:167.85A,LN:0A	Overcurrent	Unknown	Charged after isolating faulty feeder.
87	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	21-06-2022	13:19	21-06-2022	13:27		0.09	86A and 86B	(DPHLPDOC1) Fault value; L1: 85.95 A, L2: 0.0A, L3: 88.25A,Ln: 0A.	arth fault and Overcurre	Unknown	Charged.
97	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	27-06-2022	20:15	27-06-2022	20:22		0.14	86A and 86B	(DPHLPDOC1) Fault value; L1: 34.05A, L2: 79.85A, L3: 82.35A,Ln: 0A.	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/lines 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	15:06 hrs	0	171.62	400kV MHEP Line-4	Alipurduar Substation	Rph-G Fault	Z1 pickup, (AR comd. ON)	Transient	
2	02.06.2022	15:28 hrs	02.06.2022	15:39 hrs	0	331.6	400kV MHEP Line-3	Alipurduar Substation	L3-E Loop	R &B Phase Trip, , Z1 pick up. . (AR Comd. ON)	Transient	
3	23.06.2022	15:03 hrs	23.06.2022	15:03 hrs	0	-289.43	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	01.06.2022	12:57 hrs	01.06.2022	13:03 hrs	0	6.320	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	21.560	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	29.050	220/132kV 80MVA ICT-1	Jigmeling Substation		SEF optd.		
7	11.06.2022	08:48 hrs	11.06.2022	09:02 hrs	0	30.340	220kV Dagapela	Dagapela Substation	Line Fault	Main 1; R & Y phase trip, Z1 trip (BG), Main 2: R & Y phase trip, Z1 trip	Transient	
8	02.06.2022	14:27 hrs	02.06.2022	14:32 hrs	0	20	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	14:39 hrs	0	38.6	132kV Tingtibi	Tingtibi Substation	RYBph and Ground Loop.	RYB-E loop, Z1pick up. Z1 optd.	Transient	
10	23.06.2022	15:50 hrs	23.06.2022	16:19 hrs	0	34.64	132kV Tingtibi	Tingtibi Substation	RYBph 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	14.29hrs	02.06.2022	15.16hrs	0	14.4	132kV Sal-Ge	Non	Heavy lightening.	ripped,86 master relay oppe	Teporary	Charging Code: NLDC BTN=1365, NLDC IND=130 & NERLDC=2984. 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	Non	Emergency shutdown taken by TMD Gelephu	non	Teporary	TMD manager was called by Gelephu Thromde official as they were facing induction problem while stringing CCTV camara fiber line below crossing our 132kV grid line.BPSO opening Code: 0811 & closing code : 1600.
4. 132/33kV Tintibi Substation												
i) 66kV & Above												
1	18.06.2022	19:03	18.06.2022	19:08	0	16.78	Tingtibi-Nang	ingtibi-Nar	Temporary Fault	Distance Relay:Start Phase:AB,Trip Phase:ABC,Fault zone:-1 trip,Fault location:58.60kM.	Temporary Fault	
2	23.06.2022	15:50	23.06.2022	16:19	0	18.79	Tingtibi-Nang	ingtibi-Nar	Temporary Fault	Distance Relay:Start Phase:ABCN,Trip Phase:ABC,Fault zone:-1 trip,Fault location:18.75kM.	Temporary Fault	

July 2022

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Kilkhar Substation
Month:	Jul-22

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 Optd	Fault Details (As recorded by relay)			
132kV Feeders															
1	Kurichu Incomer	132KV	Tripped	07-03-2022	16:13 hrs	07-03-2022	16:18 hrs		5	4.536	NA	NA	Grid Failed	Tripped	Grid Failed from Tingtibi
2	Kurichu Incomer	132kV	Tripped	08-07-2022	22:55 hrs	08-07-2022	23:14 hrs		19	55.368	NA	NA	Grid Failed	Tripped	Grid failed ffom both the end(Rangia and Salakati)

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Kanglung Substation
Month:	Jul-22

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 Optd	Fault Details (As recorded by relay)			
	132kV														
1	Corkng to Kanglung	132	Tripping	03.07.2022	15:33	03.07.2022	15:35	0	2	18.828	distance protection opt/tripping relay opt			NA	test charged the feeder, so the feeder withstand
2	ghutsothang to Kanglung	132	Tripping	03.07.2022	15:33	03.07.2022	16:54	1	21	-21.348	GR-A/B Trip relay optd.			NA	test charged the feeder at 16:29 hrs with charging code 1650(BPSO) but couldnot withstand the feeder showing same fault
3	Corkng to Kanglung	132	Tripping	05.07.2022	0:42	05.07.2022	0:52	0	10	-21.996	distance protection opt/tripping relay opt	IA 505.7A, IB 541.4A, IC 98.64A.	Earth fault	NA	test charged, thus it withstand
4	ghutsothang to Kanglung	132	Tripping	05.07.2022	0:42	05.07.2022	1:24	0	42	20.772	GR-A/B Trip relay optd.			NA	Test charged after getting information from BPSO, thus withstand.
5	Corkng to Kanglung	132	Grid Fail	08.07.2022	22:52	08.07.2022	23:25	0	53	51.048	distance protection opt/tripping relay opt	NA		NA	Grid Fail
6	Corkng to Kanglung	132	hand tripped	20.07.2022	14:24	20.07.2022	15:01	0	37	-20.124	NA	NA[hand tripped]	33 side transfer bus isolator disk punctured and conductor snaped	NA	Due to disk punctured and conductor snaped in 33 kv side Bus, isolators caught fire and as emergency incomer had to be trip

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Nganglam Substation
Month:	Jul-22

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 Optd	Fault Details (As recorded by relay)			
132kV Feeders															
1	Nangkor-Deothang Line	132kV	Tripping	02-07-2022	16:22 hrs	02-07-2022	20:34 hrs	4	12	54.5	MiCOMP14DB	*Directional -O/C & E/F Relay*: Start Ø BN,Trip Ø N. O/C start I>1, E/F1 start IN1>12, trip IN1>2 VAB=85.86kV, VBC=86.72kV,VCA=128kV,VAN=70.0kV,VBN=24.31kV,VCN=74.65kV,IA=226.8A,IB=1.32kA,IC=237.7A, INDerived=1.260kA, IN measured=1.261kA & tripping relay 86 operated at our end.	Insulator punctured at Deothang Substation end	-	Charged after informing BPSO, Thimphu
2	Mini Grid	132kV	Tripping	03-07-2022	16:13 hrs	03-07-2022	16:18 hrs	0	5	-	-	-	Transient fault	-	Supply failed from Tingtibi & Deothang SS
3	Nangkor-Nganglam	132kV	Tripping	03-07-2022	16:13 hrs	03-07-2022	16:21 hrs	0	8	-4.1	MiCOMP14DB & Distance relay	*Directional -O/C & E/F Relay*: Start Ø ABC. O/C start I>1 VAB=33.07kV, VBC=35.84kV,VCA=47.25kV,VAN=27.54kV,VBN=10.15kV,VCN=26.97V,IA=882.7A,IB=1.866kA,IC=1.570kA, INDerived=578.3A, IN measured=578.3A & tripping relay 86 operated at our end. *Distance Relay*: Start Ø ABCN, Trip Ø ABC. Start element distance, AR lockout shot>, fault clearitime: 73.17ms, relay trip time: 79.82ms. Fault location: 9.815KM towards Nganglam. IA=1.936kA, IB=2.079kA, IC=1.857kA, VAN=8.087kV, VBN=8.124kV,VCN=10.08kV, Fault resistance=136.1mΩ & fault at Zone-1.	Tripped on fault	-	Tripped at the instant of Grid failure. Charged after receiving instruction from BPSO, Thimphu
4	132/33kV, 5MVA Trf-I	132kV	Tripping	05-07-2022	00:09 hrs	05-07-2022	00:13 hrs	0	4	0.231	Non directional IDMT relay optd	O/C relay-50A & trip relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Nanang feeder
5	132/33kV, 5MVA Trf-II	132kV	Tripping	05-07-2022	00:09 hrs	05-07-2022	00:13 hrs	0	4	0.153	Non directional IDMT relay optd	O/C relay-50A & trip relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Nanang feeder
7	132/33kV, 5MVA Trf-I	132kV	Tripping	08-07-2022	05:41 hrs	08-07-2022	05:45 hrs	0	4	0.621	Non directional IDMT relay optd	O/C relay-50A & trip relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Nanang feeder
8	132/33kV, 5MVA Trf-II	132kV	Tripping	08-07-2022	05:41 hrs	08-07-2022	05:46 hrs	0	5	0.405	Non directional IDMT relay optd	O/C relay-50A, 50C & trip relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Nanang feeder
9	132/33kV, 5MVA Trf-I	132kV	Tripping	08-07-2022	05:55 hrs	08-07-2022	05:57 hrs	0	2	0.621	Non directional IDMT relay optd	O/C relay-50A, 50C & trip relay 86 operated	Tripped on feeder fault	-	Tripped while test charging 33kV Nanang feeder
10	132/33kV, 5MVA Trf-II	132kV	Tripping	08-07-2022	05:55 hrs	08-07-2022	05:58 hrs	0	3	0.405	Non directional IDMT relay optd	O/C relay-50A, 50C & trip relay 86 operated	Tripped on feeder fault	-	Tripped while test charging 33kV Nanang feeder
11	132/33kV, 5MVA Trf-I	132kV	Tripping	08-07-2022	15:14 hrs	08-07-2022	15:18 hrs	0	4	0.522	Non directional IDMT relay optd	O/C relay-50A, 50C & trip relay 86 operated	Tripped on feeder fault	-	Tripped while closing LBS for 33kV Nanang feeder from Khoeni site
12	132/33kV, 5MVA Trf-II	132kV	Tripping	08-07-2022	15:14 hrs	08-07-2022	15:18 hrs	0	4	0.351	Non directional IDMT relay optd	O/C relay-50A, 50C & trip relay 86 operated	Tripped on feeder fault	-	Tripped while closing LBS for 33kV Nanang feeder from Khoeni site

13	Nangkor-Deothang Line	132kV	Tripping	08-07-2022	17:29 hrs	08-07-2022	17:32 hrs	0	3	42.8	Distance Relay	***Distance Relay:*** Start Ø ACN, Trip Ø ABC Start element distance, Distance trip Z1,AR lockout shot>, fault duration: 58.29ms, relay trip time: 79.95ms, Fault location: 18.35KM towards Deothang IA=1.426kA, IB=184.0A, IC=1.669kA, VAN=26.15kV, VBN=60.19kV,VCN=25.8kV, Fault resistance=359.3mΩ & tripping relay 86 operated.	Transient fault	-	Informed to BPSO & charged as per their instruction.
14	Nangkor-Deothang Line	132kV	Tripping	08-07-2022	17:47 hrs	08-07-2022	17:50 hrs	0	3	42.8	Distance Relay	***Distance Relay:*** Trip Ø ABC BRC start, BRC trip, AR lockout shot>, fault duration: 69.94ms, relay trip time: 79.93ms, IA=193.2A, IB=191.5A, IC=149.3A, VAN=78.96kV, VBN=78.15kV,VCN=77.21kV & tripping relay 86 operated.	Transient fault	-	Informed to BPSO & charged as per their instruction.
15	Nangkor-Deothang Line	132kV	Tripping	08-07-2022	17:56 hrs	08-07-2022	21:59 hrs	4	3	42.8	-	Tripping relay 86 operated	Tripped while closing CB from Deothang SS end	-	Informed to BPSO & as instructed kept CB in open position and at the same informed to TMD, Nangkor as there was repeated tripping of the said feeder. Charged as per the instruction from BPSO, Thimphu at 21:59 hrs.
16	Kurichu-Nangkor Line	132kV	Tripping	08-07-2022	17:56 hrs	08-07-2022	18:11 hrs	0	15	-41.25	Distance Relay	***Distance Relay:*** Trip Ø ABC BRC start, BRC trip, AR lockout shot>, fault duration: 63.1ms, relay trip time: 79.97ms, IA=176.8A, IB=169.5A, IC=64.42A, VAN=77.51kV, VBN=76.25kV,VCN=78.15kV & tripping relay 86 operated.	Tripped while closing CB from Deothang SS end	-	Informed BPSO & as instructed closed the CB from our end.
17	Kurichu-Nangkor	132kV	Tripping	08-07-2022	22:55 hrs	08-07-2022	23:08 hrs	0	13	-9.9	Distance Relay	***Distance Relay:*** Trip Ø ABC BRC start, BRC trip, AR lockout shot>, fault duration: 49.9ms, relay trip time: 79.91ms, IA=191.1A, IB=184.6A, IC=61.52A, VAN=76.98kV, VBN=74.35kV,VCN=77.87kV & tripping relay 86 operated.	Tripped at the instant of Grid failure	-	Informed BPSO & as instructed closed the CB from our end.
18	Main Grid	132kV	Tripping	08-07-2022	22:55 hrs	08-07-2022	23:01 hrs	0	6	-	-	-	Transient fault	-	Grid failed form Rangia SS & Salakati Grid received at 23:01 hrs.
19	Nangkor-Deothang Line	132kV	Tripping	08-07-2022	22:55 hrs	08-07-2022	23:11 hrs	0	16	0.07	Distance Relay	***Distance Relay:*** Trip Ø ABC BRC start, BRC trip, AR lockout shot>, fault duration: 63.26ms, relay trip time: 79.91ms, IA=175.4A, IB=171.6A, IC=12.39A, VAN=78.60kV, VBN=74.02V,VCN=76.58kV & tripping relay 86 operated.	Tripped at the instant of Grid failure	-	Informed BPSO & as instructed closed the CB from our end.
20	Nangkor-Nganglam	132kV	Tripping	09-07-2022	06:55 hrs	09-07-2022	09:44 hrs	2	49	14.58	-	-	Transient fault/ CB tripped without any relay indication/CB problem	-	Informed to BPSO & test charged done at 07:09 hrs and 07:17 hrs, but CB didn't stand. Checked the CB & charged after checking & tightening the trip circuit.
21	Nangkor-Nganglam	132kV	Tripping	11-07-2022	08:10 hrs	11-07-2022	08:15 hrs	0	5	-0.18	-	-	Transient fault	-	CB operated without any relay indication. Informed the BPSO & closed the CB.
23	Nangkor-Nganglam	132kV	Tripping	11-07-2022	10:49 hrs	11-07-2022	10:50 hrs	0	9	-4.86	-	-	Transient fault	-	CB operated without any relay indication. Informed to BPSO & closed the CB.
22	Nangkor-Nganglam	132kV	Tripping	11-07-2022	12:04 hrs	12-07-2022	13:07 hrs	25	3	-5.58	-	-	Transient fault	-	CB operated without any relay indication. Informed to BPSO & due to repeated tripping feeder taken under shutdown for CB rectification work.CB closed after informing to BPSO.
23	132/33kV, 5MVA Trf-I	132kV	Tripping	14-07-2022	15:28 hrs	14-07-2022	15:29 hrs	0	1	0.6	Non directional IDMT relay optd	O/C-50A & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Nanang feeder
24	132/33kV, 5MVA Trf-II	132kV	Tripping	14-07-2022	15:28 hrs	14-07-2022	15:30 hrs	0	2	0.35	Non directional IDMT relay optd	O/C-50A & tripping relay 86 operated	Tripped on feeder fault	-	Tripped due to fault on 33kV Nanang feeder
25	132/33kV, 5MVA Trf-I	132kV	Tripping	14-07-2022	16:04 hrs	14-07-2022	16:05 hrs	0	1	0.501	Non directional IDMT relay optd	O/C-50A & tripping relay 86 operated	Tripped on feeder fault	-	Tripped while test charging 33kV Tsebar feeder
26	132/33kV, 5MVA Trf-II	132kV	Tripping	14-07-2022	16:04 hrs	14-07-2022	16:05 hrs	0	1	0.512	Non directional IDMT relay optd	O/C-50A & tripping relay 86 operated	Tripped on feeder fault	-	Tripped while test charging 33kV Tsebar feeder
27	Nangkor-Nganglam	132kV	Tripping	20-07-2022	21:26 hrs	20-07-2022	21:31 hrs	0	5	-16.7	-	-	Transient fault	-	Tripped without any relay indication. Informed to BPSO & closed the CB

Division:	**SMD-DEOTHANG**
Substation:	**132/33/11kV Deothang Substation**
Month:	**Jul-22**

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 Optd	Fault Details (As recorded by relay)			
3	Deothang- Nangkor line	132kV	Tripping	02.07.2022	16:23	02.07.2022	20:37	4	14	-54.468	Nil	NA	Tripped due to Disc punctured on Y phase of 5mvA Tr II main bus side	NA	Charged after the repacemnent of disc insulator with the closing code 1638 from BPSO given by Jangchuck Sekhon.
4	Deothang- Motanga line	132kV	Tripping	02.07.2022	16:23	02.07.2022	20:51	4	27	52.524	Nil	NA	Tripped due to Disc punctured on R phase of 5mvA Tr II main bus side		Charged after the repacemnent of disc insulator with the closing code 1637 from BPSO given by Jangchuck Sekhon.
7	Deothang-Nangkor line	132kV	Tripping	03.07.2022	16:14	03.07.2022	16:19	0	5	-62.208	Over current	IA = 1.079A, IB = 1.155A Ic =1.092A IN =39.73A	Transient fault	NA	Tripped at Deothang end only . No supply interruption as the supply avail from Motanga substation
12	Deothang-Nangkor line	132kV	Shutdown	05.07.2022	8:15	05.07.2022	11:30	3	10	-43.776	NA	Nil	NA	Emergency shutdown	Shutdown as per opening code 5836 by BPSO Pema Lhamo saying Hot spot on line isolator R phase Charge as per the closing code 1663 by BPSO karma
16	5 MVA Transformer II	132/33kV	Tripping	07.07.2022	4:09	07.07.2022	4:15	0	6	0.582	Only 86 operated	Nil	Due to bangtar 6b transformer got tripped		Test charge done and found normal
23	Deothang-Nangkor line	132kV	Tripping	08.07.2022	17:28	08.07.2022	17:34	0	6	-42.768	O/C	Fault Z1 tripped. fault location-13.85km.IA-1.357kA,IB-182.9A,IC-1.482kA. Directional relay fault value:IA-1.581kA,IB-183.8A,IC-1.437kA	Unknown	NA	Test charge done and found normal
24	Deothang-Motanga line	132kV	Tripping	08.07.2022	17:28	08.07.2022	17:32	0	4	42.26	NA	Nil	NA	NA	At our end breaker is normal and supply resumed from montonga end
25	Deothang-Nangkor line	132kV	Tripping	08.07.2022	17:48	08.07.2022	21:53	4	7	-42.768	O/C	Distance relay fault value: IA-191.8A,IB-192.9A,IC-12.49A Test charged value:IA-180.8A,IB-181.5A,IC-12.57A	Unknown	NA	Test charge done 17:52 but couldn't stand.As information given by BPSO, lightning and thundering at Nangkor side
26	Deothang-Nangkor line	132kV	Tripped	08.07.2022	22:58	08.07.2022	23:15	0	17	-42.768	Distance relay	under voltage	under voltage		Test charge done 23:15hrs with the closing code 1690 given by the BPSO Karma choden and line stand
27	Deothang-Motanga line	132kV	Hand trip	08.07.2022	22:32	08.07.2022	22:40	0	8	-0.9	Nil	Nil			Breaker hand trip as to charge from Motanga substation due to unbalance in voltage. Opening code from BPSO 0846 by Phub Zam. Closing code 1695 by BPSO Karma Choden and line stand.
71	Nangkor-Deothang line	132kV	Tripping	23.07.2022	23:43	23.07.2022	23:48	0	5	-46.692	Distance relay	IA-1.288kA, IB-191A, IC-1.305kA	Transient fault	NA	Line charged as per informed by the BPSO and line hold.
86	Transformer I (5MVA)	132kV	Tripped	30.07.2022	15:10	30.07.2022	15:16	0	6	0.3	NA	relay 86 operated	due to bangtar feeder	NA	Tripped by Bangtar 6b.
87	Transformer II (5MVA)	132kV	Tripped	30.07.2022	15:10	30.07.2022	15:17	0	7	0.3	NA	relay 86 operated	due to bangtar feeder	NA	Tripped by Bangtar 6b.

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Ngangkam Substation
Month:	Jul-22

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 Optd	Fault Details (As recorded by relay)			
132kV															
1	Ngangkam-Tsirlhi feeder	132kV	Tripping	03.07.2022	16:13	03.07.2022	16:18	0	5	-14.71	Micom relayP442	IA- 952.2A IB- 982.8A IC- 953.9A VAN- 11.19kV VBN- 1.30kV VCN- 12.51kV Fault location 51.818km Relay Trip Time 0.00ms Fault resistance -66.95ham Trip Phase ABCN Zone 3	Earth Fault	CB operated both end from Tingkhi ss & Nangkor ss. No CB operated at our end only Micom relay operated.	Supply restored from Tingkhi end.
2	Ngangkam-Tsirlhi feeder	132kV	Tripping	06.07.2022	07:50	06.07.2022	07:57	0	7	-0.4	Micom relayP443	Line tripped on Earth fault	Earth Fault		
3	Ngangkam-Tsirlhi feeder	132kV	Tripping	08.07.2022	22:35	08.07.2022	23:00	0	25	-2.71	Micom relayP443	IA- 1.029kA IB- 0.000A IC-1.007kA VAN-12.39kV VBN- 1.06kV VCN- 11.28kV Fault location36.77km Relay Trip Time666.59ms Fault resistance -3.81.5 mili hms Trip Phase ABC Zone 1	Earth Fault	CB operated both end from Tingkhi ss & Nangkor ss. No CB operated at our end only Micom relay operated.	Supply restored from Tingkhi end.
4	5MVA Transformer-1 HV &LV	132kV	Tripping	08.07.2022	22:15	08.07.2022	22:26	0	11	0.886	O/C & E/F Micom relay	Tripped on Fault	Earth Fault		Supply restored from tr. 11
7	5MVA Transformer	132kV	Tripping	18.07.2022	07:38	18.07.2022	12:04	4	25		Micom O/C & E/F	Tripped on O/C and observed low SF6 and Normalized after refilling the Gas	Overcurrent		
8	5MVA Transformer	132kV	Tripping	18.07.2022	08:58	18.07.2022	09:01	0	3	0.75	Micom O/C & E/F	Tripped on O/C due to 33kV Deckerling feeder	Overcurrent		
10	5MVA Transformer	132kV	Tripping	24.07.2022	00:54	24.07.2022	00:55	0	1	0.425	O/C & E/F Micom relay	Tripped on Overcurrent while Test charging 33kV Deckerling feeder	Overcurrent		
11	Ngangkam-Tsirlhi feeder	132kV	Tripping	24.07.2022	02:10	24.07.2022	02:22	0	12	-20.56	Micom relayP442	Tripped on Overcurrent. Fault details: IA- 57.22A IB- 1.065kA IC- 1.151kA IN- 4.374A VAN- 112.0kV VBN- 38.92kV VCN- 106.4kV A/R lock out Zone2 Fault duration 399.9ms Relay Trip time 79.98ms Fault Location 85.13km Fault resistance -399 °milcro sec. Trip phase ABC	Overcurrent		
12	5MVA Transformer-1 LV side	132kV	Tripping	25.07.2022	20:05	25.07.2022	20:10	0	5	1.21	O/C & E/F Micom relay	Feeder tripped on earth fault. 86operated. 51N operated	Earth Fault		
13	5MVA Transformer	132kV	Tripping	27.07.2022	11:15	27.07.2022	11:17	0	2	0.78	O/C & E/F Micom relay	Tripped Transformer(LV side) on O/C & E/F by 33kV Deckerling feeder fault	Overcurrent/Earth Fault		
14	5MVA Transformer	132kV	Tripping	31.07.2022	03:20	31.07.2022	03:21	0	1	0.493	O/C & E/F Micom relay	Tripped on Overcurrent due to 33kV Deckerling feeder fault	Overcurrent		

Division:	SMD-DEOTHANG
Substation:	132/33kV Motanga Substation
Month:	Jul-22

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 Optd	Fault Details (As recorded by relay)			
1	Rangia Feeder	132kV	Tripping	02-07-2022	16:22 hrs	02-07-2022	16:58hrs	0	36	46.52	EFHPTOC1, REF615	*Directional -O/C & E/F Relay:* Tripped on E/F & O/C : IL1= 46.5A, IL2= 657.3A, IL3= 213.9A, Frequency= 49.96Hz .& tripping relay 86 & B operated at our end.	Tripped by transient fault.	-	informed to BPSO and charged via code: 1636(BPSO), 68(NLDC, India), 3953(NERLDC).
2	Deothang Feeder	132kV	Tripping	02-07-2022	16:22 hrs	02-07-2022	20:22hrs	4	0	-53.42	EFHPTOC1, REF615	*Directional -O/C & E/F Relay:* Tripped on E/F & O/C : IL1= 144.6A, IL2= 1593.6A, IL3= 392.4A, Frequency= 49.97Hz .& tripping relay 86 & B operated at our end.	Tripped by transient fault.	-	Rangia & Deothang feeder tripped on same time but Deothang fdr kept on hold as per BPSO, Rangia charged. Dist isolator punctured at deothang end as per BPSO. Feeder was charged after replacement of disc insulator.
3	Phuntsholling feeder	132kV	Tripping	03-07-2022	15:35 hrs	03-07-2022	21:43 hrs	0	8	-18.22	EFHPTOC1, REF615	*Directional -O/C & E/F Relay:* Tripped on E/F & O/C : IL1= 614.4A, IL2= 89.7A, IL3= 595.2A, Frequency= 50.12Hz .& tripping relay 86 & B operated at our end.	Tripped by transient fault	-	charged the feeder by verbal instruction from BPSO.
4	Phuntsholling feeder	132kV	Tripping	05-07-2022	00:44 hrs	05-07-2022	00:50 hrs	0	6	-19.99	EFHPTOC1, REF615	*Directional -O/C & E/F Relay:* Tripped on E/F & O/C : IL1= 900.3A, IL2= 981A, IL3= 52.8A, Frequency= 49.99Hz .& tripping relay 86 & B operated at our end.	Tripped by transient fault	-	charged the feeder by verbal instruction from BPSO.
5	Deothang Feeder	132kV	Tripping	05-07-2022	00:44 hrs	05-07-2022	01:22 hrs	0	38	-51.56	EFHPTOC1, REF615	*Directional -O/C & E/F Relay operated:* Tripped on E/F & O/C : IL1= 690.6A, IL2= 899.5A, IL3= 249A, Frequency= 49.91Hz .& tripping relay 86 & B operated at our end.	-	-	Charged the feeder by verbal instruction from BPSO.
6	Rangia Feeder	132kV	Tripping	07-07-2022	09:23 hrs	07-07-2022	09:47 hrs	0	24	28.11	Distance protection, REL650	*O/C & E/F Relay operated:* Tripped on E/F & O/C : IL1= 159.97A, IL2= 634.39A, IL3= 131.50A, Frequency= 50.09Hz .& tripping relay 88 & B operated at our end.	Transient fault	-	charging code: BPSO(1673, NLDC, INDIA, 310 and NERLDC, INDIA(4980.
7	Deothang Feeder	132kV	Tripping	08-07-2022	17:29 hrs	08-07-2022	17:31 hrs	0	2	-42.16	EFHPTOC1, REF615	*Directional -O/C & E/F Relay:* Tripped on E/F & O/C : IL1= 1408.6A, IL2= 243A, IL3= 1564.3A, Frequency= 49.93Hz .& tripping relay 86 & B operated at our end.	Tripped by transient fault	-	charged the feeder by verbal instruction from BPSO.
8	Rangia Feeder	132kV	Tripping	08-07-2022	17:29 hrs	08-07-2022	17:46 hrs	0	17	32.19	EFHPTOC1, REF615	*Directional -O/C & E/F Relay:* Tripped on E/F & O/C : IL1= 613.3A, IL2= 154.5A, IL3= 695A, Frequency= 49.92Hz .& tripping relay 86 & B operated at our end.	Transient fault	-	charging code: BPSO(1682, NLDC, INDIA, 425 and NERLDC, INDIA(4121).
9	Deothang Feeder	132kV	Tripping	08-07-2022	22:00 hrs	08-07-2022	22:47 hrs	0	47	0.83	DEFLPDEF1, REF615	*Directional -O/C & E/F Relay:* Tripped on E/F & O/C : IL1= 1219A, IL2= 223.2A, IL3= 1.2A, Frequency= 50.03Hz .& tripping relay 86 & B operated at our end.	Transient fault	-	At 22:34hrs test charge was done at our end but CB did not hold & got tripped on same fault. Yard inspection carried out for any abnormalities. Informed BPSO and charged feeder with code: 1694.
10	Deothang Feeder	132kV	Tripping	09-07-2022	03:13 hrs	10-07-2022	15:17 hrs	28	4	-7.47	DEFLPDEF1, REF615	*Directional -O/C & E/F Relay:* Tripped on E/F & O/C : IL1= 245A, IL2= 247.2A, IL3= 1.2A, Frequency= 50.01Hz, Fuse Fail/BRC shown at REL650 distance protection relay; .& tripping relay 86 & B operated at our end.	Feeder tripped on permanent fault	-	Feeder was tripped and there was low voltage shown on B-phase. Fuse fail/broken conductor indicated by REL650 Relay. Informed BPSO & TMD team, Deothang. Line patrolling carried out by TMD team and found that B-Phase jumper was cut at location no. DM 23/1. Replaced jumper and charged the feeder on next day upon coordination with BPSO.
11	15MVA Transformer	132/33kV	Tripping	12-07-2022	00:35 hrs	12-07-2022	00:39 hrs	0	4	3.01	Distance protection, REL650	tripping relay 86A and B and SEF operated.		-	charged the transformer by verbal instruction from BPSO.
12	15MVA Transformer	132/33kV	Tripping	18-07-2022	04:17 hrs	18-07-2022	04:39 hrs	0	22	1.02	protection Relay 86 A&B operated.	tripped on O/C & E/F, 50/51 trip.	Transient fault	-	coordinated with BPSO and charged.
13	Rangia Feeder	132kV	shutdown	19-07-2022	11:29 hrs	19-07-2022	13:56 hrs	2	27	4.96	-	-	-	For ReW clearing works.	Shutdown taken by Rangia end for ReW clearing works.
14	15MVA Transformer	132/33kV	Tripping	19-07-2022	14:11 hrs	19-07-2022	14:16 hrs	0	5	1.54	protection Relay 86 A&B operated.	tripped on O/C & E/F, 50/51 trip. SEF protection trip.	Transient fault	-	charged the feeder by verbal instruction from BPSO.
15	15MVA Transformer	132/33kV	Tripping	21-07-2022	05:57 hrs	21-07-2022	06:03 hrs	0	6	0.16	Directional E/F Relay, DEFLPDEF1, & 86 A&B operated.	tripped on O/C & E/F, 50/51 trip. SEF protection trip.	Transient fault	-	-
16	Deothang Feeder	132kV	Tripping	23-07-2022	23:44 hrs	23-07-2022	23:52 hrs	0	8	-45.43	EFHPTOC1, REF615	*Directional -O/C & E/F Relay:* Tripped on E/F & O/C : IL1= 1968A, IL2= 256.2A, IL3= 1824.6A, Frequency= 49.86Hz, tripping relay 86A&B operated at our end.	Transient fault	-	Charged as per the instruction from BPSO.
17	Rangia Feeder	132kV	Tripping	23-07-2022	23:44 hrs	24-07-2022	00:33 hrs	0	49	37.3	EFHPTOC1, REF615	*Directional -O/C & E/F Relay:* Tripped on E/F & O/C : IL1= 1616.4, IL2= 297.6A, IL3= 1549.2A, Frequency= 49.88Hz, tripping relay 86A&B operated at our end.	Transient fault	-	charging code: BPSO(1795, NLDC, INDIA, 1259 and NERLDC, INDIA(4662).
18	Rangia Feeder	132kV	shutdown	26-07-2022	09:25 hrs	26-07-2022	13:29 hrs	0	49	37.3	-	-	-	For ReW clearing works by TMD, Pthang.	Shutdown taken by TMD, P/thang for ReW clearing works.

Division:	SMD-DEOTHANG
Substation:	132/33kV Corlung Substation
Month:	Jul-22

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 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	Grid fail	132kV	Grid fail	08-07-2022	22:55 hrs	08-07-2022	23:25 hrs	0	30		Nil	Nil	Grid fail		33 kV Incomer was tripped on under voltage due to 132 kV grid fail

Division:	SMD-DEOTHANG
Substation:	132/33kV Phuentshothang Substation
Month:	Jul-22

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 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
50	132/33kV Transformer-II (30MVA)	132kV	Transient fault	05-07-2022	17:11	05-07-2022	17:14		3	0.00	86A and 86B	(PHPTOC1)Fault Value L1: 7.65A, L2: 185.25A,L3: 179.7A, LN: 0	Overcurrent and earth fault	Unknown	Charged
9	132kV Kanglung Line	132kV	Transient fault	05-07-2022	00:44	05-07-2022	01:06		22	20.44	Zone-1 OPTD, R-PH and B-PH TRIP, OV/UV TRIP, 86A and 86B	Fault Value L1: 1698.01A, L2: 1742.19A,L3: 108.38A, LN: 1072.11A	Zone-1 OPTD, R-PH and B-PH TRIP, OV/UV TRIP	Unknown	Grid Fail at 0:44, at 0:44 breaker got open and after receiving information from BPSO, line charged at 1:06
15	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	06-07-2022	17:59	06-07-2022	18:00		1	0.32	86A and 86B	(DPHLPDOC1) Fault value: L1: 181.5A, L2: 88.69A, L3: 95A,Ln: 0A	Overcurrent	Unknown	Charged
19	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	06-07-2022	13:57	06-07-2022	13:59		2	0.32	86A and 86B	(DPHLPDOC1) Fault value: L1: 183.45A, L2: 87.45A, L3: 93A,Ln: 0A	Overcurrent	Unknown	Charged
25	132/33kV Transformer-II (10MVA)	132kV	Transient fault	07-07-2022	10:11	07-07-2022	10:14		3	0.26	86A and 86B	(DPHLPDOC1) Fault value: L1: 144.6A, L2: 1.8A, L3: 140.25A,Ln: 0A	Overcurrent and earth fault	Unknown	Charged
33	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	06-07-2022	22:36	06-07-2022	22:38		2	0.27	86A and 86B	(DPHLPDOC1) Fault value: L1: 123.75A, L2: 81.3A, L3: 76.95A,Ln: 0A	Overcurrent	Unknown	Charged
39	132kV Motanga Line	132kV	Transient fault	08-07-2022	23:15	08-07-2022	23:33		18	47.13	OV/UV TRIP, 86A and 86B	Fault Value L1: 0.12A, L2: 0.18A,L3: 0.05A, LN: 0.32A	OV/UV TRIP	Unknown	Grid Fail at 23:15, at 23:15 breaker got open. While charging from Motanga end Line Normalize at 23:31 from Kanglung end, after receiving information from BPSO, Motanga line charged at 23:33
40	132/33kV Transformer-II (30MVA)	132kV	Transient fault	08-07-2022	23:38	08-07-2022	23:40		2	0.31	86A and 86B	(DPHLPDOC1)Fault Value L1: 73.95A, L2: 72.6A,L3: 1.35A, LN: 0	Overcurrent and earth fault	Unknown	Charged
50	132/33kV Transformer-II (30MVA)	132kV	Transient fault	05-07-2022	17:11	05-07-2022	17:14		3	0.00	86A and 86B	(PHPTOC1)Fault Value L1: 7.65A, L2: 185.25A,L3: 179.7A, LN: 0	Overcurrent and earth fault	Unknown	Charged
56	132/33kV Transformer-II (10MVA)	132kV	Transient fault	10-07-2022	09:12	10-07-2022	09:14		2	0.52	86A and 86B	(DPHLPDOC1) Fault value: L1: 82.65A, L2: 72.75A, L3: 40.35 A,Ln: 0A	Earth fault	Unknown	Charged
59	132/33kV Transformer-II (30MVA)	132kV	Transient fault	10-07-2022	09:18	10-07-2022	09:20		2	0.22	86A and 86B	(DPHLPDOC1)Fault Value L1: 155.25A, L2: 2.25A,L3: 157.35A, LN: 0	Overcurrent and earth fault	Unknown	Charged
67	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	10-07-2022	19:57	10-07-2022	19:59		2	0.80	86A and 86B	(DPHLPDOC1) Fault value: L1: 59.55A, L2: 52.95A, L3: 19.2A,Ln: 0A	Overcurrent and earth fault	Unknown	Charged
75	132/33kV Transformer-II (10MVA)	132kV	Transient fault	11-07-2022	12:44	11-07-2022	12:46		2	0.58	86A and 86B	Did not reflect on REF615 relay	Earth fault	Unknown	Charged
78	132/33kV Transformer-II (10MVA)	132kV	Transient fault	12-07-2022	16:36	12-07-2022	16:38		2	0.52	86A and 86B	(DPHLPDOC1) Fault value: L1: 118.75A, L2: 5.6A, L3: 117.45A,Ln: 0A	Over current and Earth fault	Unknown	Charged
84	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	14-07-2022	19:09	14-07-2022	19:19		1	0.80	86A and 86B	(DPHLPDOC1) Fault value: L1: 51.45A, L2: 97.65A, L3: 82.95A,Ln: 0A	Earth fault	Unknown	Charged
87	132/33kV Transformer-II (10MVA)	132kV	Transient fault	14-07-2022	21:11	14-07-2022	21:13		2	0.83	86A and 86B	(DPHLPDOC1) Fault value: L1: 51.45A, L2: 97.65A, L3: 82.95A,Ln: 0A	Over Current	Unknown	Charged
90	132/33kV Transformer-II (10MVA)	132kV	Transient fault	15-07-2022	05:04	15-07-2022	05:07		3	0.58	86A and 86B	(DPHLPDOC1) Fault value: L1: 184.95A, L2: 181.2A, L3: 3.9A,Ln: 0A	Over current and Earth fault	Unknown	Charged
99	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	15-07-2022	16:23	15-07-2022	16:26		3	0.63	86A and 86B	Fault Value did not reflect on Relay (REF615)	Earth fault	Unknown	Charged
103	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	15-07-2022	17:18	15-07-2022	17:21		3	0.67	86A and 86B	Fault Value did not reflect on Relay (REF615)	Earth fault	Unknown	Charged
106	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	16-07-2022	05:58	16-07-2022	06:00		2	0.65	86A and 86B	(DPHLPDOC1) Fault value: L1: 50.25A, L2: 115.5A, L3: 106.35A,Ln: 0A	Earth fault	Unknown	Charged
109	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	16-07-2022	07:34	16-07-2022	07:38		4	0.92	86A and 86B	Not reflected on REF615	Earth fault	Unknown	Charged
113	132/33kV Transformer-II (30MVA)	132kV	Transient fault	16-07-2022	12:07	16-07-2022	12:10		3	0.54	86A and 86B	(DPHLPDOC1)Fault Value L1: 38A, L2: 96.75A,L3: 95.4A, LN: 0	Overcurrent and earth fault	Unknown	Charged
116	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	17-07-2022	05:38	17-07-2022	05:44		6	0.63	86A and 86B	(DPHLPTOC1) Fault value: L1: 112.95, L2: 115.8A, L3: 62.7A,Ln: 0A	Earth fault	Unknown	Charged
121	132/33kV Transformer-II (10MVA)	132kV	Transient fault	17-07-2022	10:57	17-07-2022	10:59		2	0.61	86A and 86B	(DPHLPDOC1) Fault value: L1: 1.8A, L2: 107.85A, L3: 108.4A,Ln: 0A	Over current and Earth fault	Unknown	Charged
125	132/33kV Transformer-II (10MVA)	132kV	Transient fault	17-07-2022	12:20	17-07-2022	12:23		3	0.10	86A and 86B	(DPHLPDOC1) Fault value: L1: 167.85A, L2: 165.45A, L3: 8.525A,Ln: 0A	Over current and Earth fault	Unknown	Charged
128	132/33kV Transformer-II (10MVA)	132kV	Transient fault	17-07-2022	14:31	17-07-2022	14:33		2	0.57	86A and 86B	(DPHLPDOC1) Fault value: L1: 3.45A, L2: 84.45A, L3: 81.6A,Ln: 0A	Over current and Earth fault	Unknown	Charged
135	132/33kV Transformer-II (10MVA)	132kV	Transient fault	18-07-2022	09:18	18-07-2022	09:21		3	0.57	86A and 86B	Fault value not detected or reflect on REF615	Earth fault	Unknown	Charged
139	132/33kV Transformer-II (10MVA)	132kV	Transient fault	18-07-2022	15:20	18-07-2022	15:22		2	0.60	86A and 86B	(DPHLPDOC1) Fault value: L1: 159.15A, L2: 155.4A, L3: 4.35A,Ln: 0A	Earth fault and Overcurrent	Unknown	Charged
142	132/33kV Transformer-II (10MVA)	132kV	Transient fault	19-07-2022	10:49	19-07-2022	10:51		2	0.52	86A and 86B	(DPHLPDOC1) Fault value: L1: 46.35A, L2: 62.4A, L3: 20.05A,Ln: 0A	Earth fault	Unknown	Charged
145	132/33kV Transformer-II (10MVA)	132kV	Transient fault	19-07-2022	14:53	19-07-2022	14:56		3	0.50	86A and 86B	(DPHLPDOC1) Fault value: L1: 89.1A, L2: 42A, L3: 41A,Ln: 0A	Earth fault	Unknown	Charged
148	132/33kV Transformer-II (10MVA)	132kV	Transient fault	19-07-2022	18:21	19-07-2022	18:22		1	0.67	86B	(DPHLPDOC1) Fault value: L1: 45.75A, L2: 101.1A, L3: 95.1A,Ln: 0A	Earth fault	Unknown	Charged
152	132/33kV Transformer-II (10MVA)	132kV	Transient fault	20-07-2022	09:22	20-07-2022	09:26		4	0.58	86A And 86B	(DPHLPDOC1) Fault value: L1: 115.5A, L2: 111.9A, L3: 17.5A,Ln: 0A	Earth fault and Overcurrent	Unknown	Charged
148	132/33kV Transformer-II (10MVA)	132kV	Transient fault	20-07-2022	14:22	20-07-2022	14:24		2	0.52	86A and 86B	(DPHLPDOC1) Fault value: L1: 195A, L2: 195.3A, L3: 69.6A,Ln: 0A	Over current	Unknown	Charged
151	132/33kV Transformer-II (10MVA)	132kV	Transient fault	20-07-2022	14:36	20-07-2022	14:38		2	0.52	86A and 86B	Fault value not detected or reflect on REF615	Earth fault	Unknown	Charged
155	132/33kV Transformer-II (10MVA)	132kV	Transient fault	20-07-2022	17:04	20-07-2022	17:06		2	0.61	86A and 86B	Fault value not detected or reflect on REF615	Earth fault	Unknown	Charged
159	132/33kV Transformer-II (10MVA)	132kV	Transient fault	21-07-2022	10:11	21-07-2022	10:14		3	0.54	86A and 86B	(DPHLPDOC1) Fault value: L1: 59.4A, L2: 58.95A, L3: 61.35A,Ln: 0A	Over current	Unknown	Charged
166	132/33kV Transformer-II (10MVA)	132kV	Transient fault	22-07-2022	01:16	22-07-2022	01:18		2	0.51	86A and 86B	(DPHLPDOC1) Fault value: L1: 3.3A, L2: 55.8A, L3: 52.65A,Ln: 0A	Over current	Unknown	Charged
177	132/33kV Transformer-II (10MVA)	132kV	Transient fault	23-07-2022	14:23	23-07-2022	14:25		2	0.56	86A and 86B	(DPHLPDOC1) Fault value: L1: 96.0A, L2: 78.45A, L3: 46.95A,Ln: 0A	Earth fault	Unknown	Charged
180	132/33kV Transformer-II (10MVA)	132kV	Transient fault	23-07-2022	21:41	23-07-2022	21:42		1	0.74	86A and 86B	Fault Value did not reflect on Relay (REF615)	Earth fault	Unknown	Charged
181	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	23-07-2022	23:40	23-07-2022	23:43		3	0.58	86A and 86B	(DPHLPDOC1) Fault value: L1: 91.05A, L2: 138A, L3: 73.35A,Ln: 0A	Earth fault	Unknown	Charged
188	132/33kV Transformer-II (30MVA)	132kV	Transient fault	25-07-2022	09:59	25-07-2022	10:01		2	0.27	86A and 86B	(DPHLPOC1)Fault Value L1: 3A, L2: 37.6A,L3: 37.2A, LN: 0	Overcurrent	Unknown	Charged
192	132/33kV Transformer-II (10MVA)	132kV	Transient fault	25-07-2022	15:29	25-07-2022	15:30		1	0.58	86A and 86B	Fault Value did not reflect on Relay (REF615)	Earth fault	Unknown	Charged
194	132/33kV Transformer-II (10MVA)	132kV	Transient fault	25-07-2022	16:55	25-07-2022	17:00		5	0.10	86A and 86B	Fault Value did not reflect on Relay (REF615)	Earth fault	Unknown	Charged
200	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	25-07-2022	23:29	25-07-2022	23:31		2	0.54	86A and 86B	Not reflected on REF615	Earth fault	Unknown	Charged
205	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	27-07-2022	02:29	27-07-2022	02:33		4	0.43	86A and 86B	(DPHLPDOC1)Fault Value L1: 296.25A, L2: 135.75A,L3: 169.65A, LN: 0	Over current	Unknown	Charged
209	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	27-07-2022	07:55	27-07-2022	08:00		5	0.10	86A and 86B	(DPHLPDOC1)Fault Value L1: 5.25A, L2: 120.45A,L3: 116.4A, LN: 0	Over current and Earth fault	Unknown	Charged
215	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	27-07-2022	10:04	27-07-2022	10:09		5	0.55	86A and 86B	(DPHLPDOC1)Fault Value L1: 127.95A, L2: 1.3A,L3: 120.95A, LN: 0	Over current	Unknown	Charged
225	132/33kV Transformer-II (10MVA)	132kV	Transient fault	29-07-2022	01:54	29-07-2022	01:56		2	0.51	86A and 86B	Fault Value did not reflect on Relay (REF615)	Earth fault	Unknown	Charged
230	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	29-07-2022	11:53	29-07-2022	11:58		5	0.58	86A and 86B	Not reflected on REF615	Earth fault	Unknown	Charged
234	132/33kV Transformer-II (10MVA)	132kV	Trip on Fault	29-07-2022	19:25	29-07-2022	19:27		2	1.00	86A and 86B	Not reflected on REF615	Earth fault	Unknown	Charged
236	132/33kV Transformer-II (30MVA)	132kV	Transient fault	31-07-2022	09:29	31-07-2022	09:30		1	0.12	86A and 86B	(DPHLPDOC1)Fault Value L1: 1.65A, L2: 188A,L3: 188.5A, LN: 0	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/lines Affected by the Fault	Reasons of Fault	Relay Operations	Fault Location(KM)	Type of outages	Remarks
i) 132kV Above													
1	29.07.2022	5:48 hrs	29.07.2022	6:19 hrs	0	-4.65	400/220 kV ICT	Jigmeling Substation		67/67NLV			
2	03.07.2022	15:40 hrs	03.07.2022	16:20 hrs	0	-39.250	220kV ICT-1	Jigmeling Substation		Main 1&2 86.1&2 trip and RYBph trip	Main 1 Fault current Ic = 2.94KA at distance 10.8km. Main 2 Fault distance 10.48km.		
3	07.07.2022	06:17 hrs	07.07.2022	06:23 hrs	0	35.180	220kV Dagapela Feeder	Dagapela Substation	Earth fault(YBph to Ground)	Main 1 &2 (YBph Trip and Z1 trip, Zone1 trip,	Main 1 &2 Fault Current Ia =.10 kA,Ib=7.45kA, Ic=7.35kA, Fault distance 7.2km		
4	08.07.2022	19:48 hrs	08.07.2022	19:59 hrs	0	-15.780	220kV Tsirang Feeder	Jigmeling Substation	Earth fault(L1L2- Ground)	Main 1 &2 (L1L2-G Trip), Zone1 trip.	Main 1 &2 Current Ia =3.71kA, Ib=0.14kA, Ic=3.97kA, Fault distance (21.1)7.8km.		
5	08.07.2022	19:50 hrs	08.07.2022	20:00 hrs	0	32.470	220kV Dagapela Feeder	Dagapela Substation	Earth fault(L1L3- Ground)	Main 1 &2 (L1L3-G Trip),Zone1 trip,	Main 1 &2 Current Ia =3.80 kA, Ib=0.11kA, Ic=3.7kA, Fault distance 5.8km(21.1)& 3.79(21.2)		
6	09.07.2022	02:18 hrs	09.07.2022	02:33 hrs	0	48.160	220kV Tsirang Feeder	Jigmeling Substation	Earth fault(B phase to Ground)	Main 1 (R,Y & B phase trip, Zone1 trip Main 2 (R,Y & B phase trip , Zone1 trip	Main 1 Fault distance 17.6km Main 2 Fault distance 17.56km		
7	09.07.2022	02:20 hrs	09.07.2022	02:34 hrs	0		220kV Dagapela Feeder	Dagapela Substation	Earth fault(Y phase to Ground)	Main 1 (R & Y phase trip , Zone1 trip Main 2 (R & Y phase trip , Zone1 trip	Main 1 Fault distance 10.9km Main 2 Fault distance 14.65km		
8	09.07.2022	19:54 hrs	09.07.2022	20:02 hrs	0	61.490	220kV Tsirang Feeder	Jigmeling Substation	R,Bphase to ground loop	R,B phase (Z1 trip, Ia-3.03kA,Ib-0.17kA,Ic-1.66kA,50N/51N trip,) main 1&2 trip	Fault Dist-11.1km		
9	20.07.2022	19:54 hrs	20.07.2022	20:05 hrs	0	44.570	220kV Dagapela Feeder	Dagapela Substation	R,B phase to ground loop	R,B phase trip(Z1 trip,Ia-3.47kA,Ib-0.23kA, Ic-8.51kA,50N/51Ntip,) main 1 and 2 86.1 &2 trip.	Fault Dist-9.4KM		
10	21.07.2022	19:17hrs	21.07.2022	20:27hrs	1		220kV Bus Coupler	Jigmeling Substation	Over Current	50 trip			
11	22.07.2022	19:08hrs	22.07.2022	19:23hrs			220kV Bus Coupler	Jigmeling Substation	Over Current	50 trip			
12	03.07.2022	14:05 hrs	03.07.2022	14:12 hrs	0	45.06	132kV Tingtibi feeder	Tingtibi Substation	RYB phase trip.	Main 1&2 86.1&2 trip. RYB phase trip,Z1 trip,	fault Current Ia=3.74kA, Ib=3.95kA,Ic=3.81 kA, Distance=30.8km	Transient	
13	03.07.2022	15:40 hrs	03.07.2022	16:20	0	39.49	132kV ICT-1	Jigmeling Substation		Main 1&2 86.1&2 trip and RYBph trip		Transient	
14	08.07.2022	20:28 hrs	08.07.2022	20:36 hrs	0	35.17	132kV Tingtibi feeder	Tingtibi Substation	Earth fault (L2L3-G)	Main 1 optd, L2L3-G Trip, Zone1 trip,	Main 1 Current Ia =0.17kA, Ib=2.05kA, Ic=2.18kA, Fault distance 8.00km(21.1)	Transient	
15	08.07.2022	20:30 hrs	08.07.2022	20:35 hrs	0	20.94	132kV Gelephu feeder	Gelephu Substation	Earth fault (L2L3-G)	Main 1&2 optd, L2L3-Goond Trip, Zone1 trip,	Fault distant (21.1)7.50km.	Transient	
16	24.07.2022	16:09hrs	24.07.2022	16:20hrs	0	31.66	132kV Tingtibi feeder	132kV Tingtibi feeder	Earth fault (L1L2-G)	Main 1&2 optd, L1L2-Goond Trip, Zone1 optd,	Fault distant 5.00km.	Transient	
17	24.07.2022	16:11hrs	24.07.2022	16:37hrs	0	19.95	132kV Gelephu feeder	Gelephu Substation	Earth fault (L1L2L3)	Main 1&2 optd, L1 L2L3 Trip, Zone1 optd,	Fault distant 6.4km.	Transient	

2. 220/66/33kV Dhajay Substation													
i) 66kV and above													
1	08.07.2022	19:48hrs	08.07.2022	19:58hrs	0	20.82	Tsirang-Jigmeling	Dhajay Subsatio n	Main 1- Ia=1.86kA, Ib=0.01kA, Ic=1.87kA with distance 30.3kM. Main 2- Ia=1745.84A, Ib=103.89A, Ic=1873.28A with distance 30.38KM.	Distance relay Main 1&2(21.1& 21.2)	Line segment	Tripped	Feeder restored after BPSO instructions.
2	09.07.2022	2:18:05hrs	09.07.2022	2:32:30hrs	0	20.82	Tsirang-Jigmeling	Dhajay Subsatio n	Main 1- Ia=2.01kA, Ib=1.25kA, Ic=2.09kA with distance 31kM. Main 2- Ia=2043.55A, Ib=1029.94A, Ic=2093.24A with distance 17KM.	Distance relay Main 1&2(21.1& 21.2)	Line segment	Tripped	Feeder restored after BPSO instructions.
3	20.07.2022	19:52hrs	20.07.2022	20:00hrs	0	61.58	Tsirang-Jigmeling	Dhajay Subsatio n	Main 1- Ia=2.24kA, Ib=0.01kA, Ic=0.01kA with distance 47.21kM. Main 2- Ia=2051.34A, Ib=177.28, Ic=1681.48A, In=1663.12A with distance 31KM.	Distance relay Main 1&2(21.1& 21.2)	Line segment	Tripped	Feeder restored after BPSO instructions.
3. 132/66/33/11kV Gelephu Substation													
i) 66kV and above													
1	08.07.2022	20.29hrs	08.07.2022	21.39hrs	1	24	132kv Sal-Ge	Gelephu ss	heavy lightening	o/c on ABC - phase IA=160.5A,IB=1 595KA,IC=1.44 8KA		Temporary .	Charging Code; NLDC BTN=1689, NLDC IND=430 & 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	16.09hrs	24.07.2022	16.55hrs		15	132kv Sal-Ge	Gelephu ss	heavy lightening	o/c on ABC - phase IA=1.618KA,IB =1.700KA,IC=1. 741KA		Temporary.	Charging Code; NLDC BTN=1808, NLDC IND=1275 & NERLDC=4681. At the same time 132kv Gel-Jig line also tripped from Jigmeling end & charged back at 16.38hrs
3	24.07.2022	17.12hrs	24.07.2022	19.26hrs	2	12	132kv Gel-Jel	Non	Isolator clamp burnt	shut down taken by	Gelephu ss	Temporary.	Due to burnt (spark) on R phase line isolator Opening code:NLDC BTN=0892 & Closing code:NLDC BTN=1810 Salakati was normal so the customer were not affected during that emergency shutdow
4	24.07.2022	19.40hrs	24.07.2022	20.50hrs	1	12	132kv Gel-Jel	Non	Isolator clamp burnt	shut down taken by	Gelephu ss	Temporary.	Due to burnt (spark) on Y phase line isolator Opening code:NLDC BTN=0894 & Closing code:NLDC BTN=1815.customer was not affected as salakati was there.

4. 132/33kV Tintibi Substation

a 66kV & Above

1	03.07.2022	14:04	03.07.2022	14:13	0	-44.57	Tingbi-Jigmeingtbi-Jigm		Temporary Fault	Distance Relay Start Phase:ABCN,Trip Phase:ABC,Fault zone-1 trip,Fault location:18.84kM	18.84kM	Temporary	
2	03.07.2022	16:13	03.07.2022	16:18	0	14.98	Tingbi-nangingtbi-nan		Temporary Fault	Distance Relay Start Phase:ABCN,Trip Phase:ABC,Fault zone-1 trip,Fault location:55.81kM	55.18kM	Temporary	
3	06.07.2022	07:50	06.07.2022	08:03	0	2.38	Tingbi-nangingtbi-nan		Temporary Fault	Distance Relay Start Phase:ABCN,Trip Phase:ABC,Fault zone-1 trip,Fault location:35.91kM	35.91kM	Temporary	
4	08.07.2022	20:28	08.07.2022	20:28	0	-23.54	Tingbi-Jigmeingtbi-Jigm		Temporary Fault	Distance Relay Start Phase:BCN,Trip Phase:ABC,Fault zone-1 trip,Fault location:22.88kM	22.88kM	Temporary	
5	08.07.2022	22:16	08.07.2022	22:26	0	22.26	Tingbi-nangingtbi-nan		Temporary Fault	Distance Relay Start Phase:ABCN,Trip Phase:ABC,Fault zone-1 trip,Fault location:32.17kM	32.17kM	Temporary	
6	08.07.2022	22:34	08.07.2022	22:43	0	15.54	Tingbi-nangingtbi-nan		Temporary Fault	Distance Relay Start Phase:BN,Trip Phase:ABC,Fault zone-1 trip,Fault location:30.29kM	30.29kM	Temporary	
7	08.07.2022	22:47	08.07.2022	22:59	0	14.54	Tingbi-nangingtbi-nan		Temporary Fault	Distance Relay Start Phase:ABN,Trip Phase:ABC,Fault zone-1 trip,Fault location:53.47kM	53.47kM	Temporary	
8	08.07.2022	15:15	08.07.2022	15:31	0	32.44	Tingbi-Jigmeingtbi-Jigm		Temporary Fault	Distance Relay Start Phase:BCN,Trip Phase:ABC,Fault zone-1 trip,Fault location:17.34kM	17.34kM	Temporary	
9	08.07.2022	15:32	08.07.2022	16:21	0	-32.2	Tingbi-Jigmeingtbi-Jigm		Temporary Fault	Distance Relay Start Phase:BCN,Trip Phase:ABC,Fault zone-1 trip,Fault location:17.70kM	17.70kM	Temporary	
10	24.07.2022	02:10	24.07.2022	02:20	0	19.66	Tingbi-nangingtbi-nan		Temporary Fault	Distance Relay Start Phase:ABN,Trip Phase:ABC,Fault zone-1 trip,Fault location:19.08kM	19.08kM	Temporary	
11	24.07.2022	14:36	24.07.2022	14:47	0	13.61	Tingbi-nangingtbi-nan		Temporary Fault	Distance Relay Start Phase:AN,Trip Phase:ABC,Fault zone-1 trip,Fault location:XY 19.76kM	19.76kM	Temporary	
12	24.07.2022	16:09	24.07.2022	16:19	0	30.01	Tingbi-Jigmeingtbi-Jigm		Temporary Fault	Distance Relay Start Phase:ABCN,Trip Phase:ABC,Fault zone-1 trip,Fault location:24.49kM	24.49kM	Temporary	

6. 220/33kV Dagapela Substation													
i) 66kV & Above													
1	07.07.2022	06:15hrs	7.07.2022	06:25hrs	0	-34.99	220kV Jimeling	Dagapela Substation	Earth fault	Master trip relay optd	zone 1 at the distance of 7.2 km(Y&B phase)	Grid fail	Tripped from Jigmeling end due to o/c
2	8.07.2022	17:48hrs	8.07.2022	20:02hrs	2	-32.13	220kV Jimeling	Dagapela Substation	L1 L3 phase to ground(Earth fault)	Master trip relay optd		Grid fail	Tripped from Jigmeling end due to o/c
3	9.07.2022	02:22hrs	9.07.2022	02:34hrs	0	-34.43	220kV Jimeling	Dagapela Substation	R&Y phase	Master trip relay optd	zone	Grid fail	Tripped from Jigmeling end due to o/c
4	20.07.2022	19:53hrs	20.07.2022	20:04hrs	0	-43.84	220kV Jimeling	Dagapela Substation	R&B to ground	Master trip relay optd	distance at 9.4km	Grid fail	Tripped from Jigmeling end due to o/c

August 2022

Division:	SMD DEOTHANG
Substation:	132/33/11kV Kanglung Substation
Month:	Aug-22

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 of Outage (Hrs)	Duration of Outage (Min)	MW before Outage (MW)	Protection Relay Optd (name of relay)	Fault Details (As recorded by relay)	Type/Cause of Fault (if tripped)	Reason for Shutdown (if shutdown)	Weather Condition during the Outage	Remarks
132kV																
2	Kanglung-[illegible]	132	tripping	03.08.2022	20:40	03.08.2022	20:59	0	19	19.132	NA	NA	due relay optd		Clear	Grid fail
3	Kanglung-[illegible]	132	tripped	13.08.2022	17:18	13.08.2022	17:24	0	6	11.864	Distance relay Optd		Due to lightening		Rainy	Line charged after 6 minutes as per the instruction from BPSO without closing code

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

BPC/SMD/132KV/NSS/2022/03/081

Date: 01.09.2022

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 of Outage (Hrs)	Duration of Outage (Min)	MW before Outage (MW)	Protection Relay Optd	Fault Details (As recorded by relay)	Type/Cause of Fault	Reason for Shutdown	Weather Condition during the Outage	Remarks
132kV Feeders																
1	132/33kV, 5MVA Tr# I	132kV	Tripping	08-08-2022	10:10 hrs	08-08-2022	10:12 hrs	0	2	0.396	Non directional IDMT relay optd	O/C relay-50C & trip relay 86 operated	Tripped on feeder fault	-	Clear	Tripped due to fault on 33kV Tsebar feeder
2	132/33kV, 5MVA Tr# II	132kV	Tripping	08-08-2022	10:10 hrs	08-08-2022	10:13 hrs	0	3	0.236	Non directional IDMT relay optd	O/C relay-50C & trip relay 86 operated	Tripped on feeder fault	-	Clear	Tripped due to fault on 33kV Tsebar feeder
3	132/33kV, 5MVA Tr# I	132kV	Tripping	11-08-2022	18:45 hrs	11-08-2022	18:50 hrs	0	5	0.627	Non directional IDMT relay optd	O/C relay-50C & trip relay 86 operated	Tripped on feeder fault	-	Clear	Tripped at the instant of charging 33kV Wamrong feeder
4	132/33kV, 5MVA Tr# II	132kV	Tripping	11-08-2022	18:45 hrs	11-08-2022	18:52 hrs	0	6	0.42	Non directional IDMT relay optd	O/C relay-50C & trip relay 86 operated	Tripped on feeder fault	-	Clear	Tripped at the instant of charging 33kV Wamrong feeder
7	Nangkor-Ngangkam Line	132kV	Tripping	31-08-2022	03:18 hrs	31-08-2022	03:41 hrs	0	7	-8.25	-	No relay operated	-	-	Heavy rainfall	Informed to BPSO & closed the CB
8	Nangkor-Ngangkam Line	132kV	Tripping	31-08-2022	03:57 hrs	31-08-2022	05:47 hrs	1	50	-8.35	-	No relay operated	-	-	Heavy rainfall	Informed to BPSO & closed the CB
9	Nangkor-Ngangkam Line	132kV	Tripping	31-08-2022	05:56 hrs	31-08-2022	08:37 hrs	2	41	-8.35	-	No relay operated	-	-	Heavy rainfall	Informed to BPSO. Due to heavy rainfall, going to Yard was held, checked the circuit inside relay panel and found ok & closed the CB.
10	Nangkor-Ngangkam Line	132kV	Tripping	31-08-2022	09:41 hrs	31-08-2022	15:03 hrs	5	22	9.57	-	No relay operated	-	Due to heavy rainfall, the water have dripped into CB mechanism box & its visiting IR.	Heavy Rainfall	Informed to BPSO that CB rectification work will carry out after rainfall subsides & CB kept in open position.

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

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 of Outage (Hrs)	Duration of Outage (Min)	MW before Outage (MW)	Protection Relay Optd	Fault Details (As recorded by relay)	Type/Cause of Fault	Reason for Shutdown	Weather Condition during the Outage	Remarks
[illegible]	Transformer I & II (5MVA)	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		NA	Nil	NA	Tripped by Bangtar and Samdrup Jongkhar line	Thunder and raining	Test charged done and found normal
[illegible]	5MVA Transformer I	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Neutral Displacement relay at 33kV bus transfer	Nil	Unit of arching Horn in Earthing Transformer at R Phase	NA	clear	Test charge done found normal
[illegible]	5MVA Transformer II	[illegible]	Tripping	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Neutral Displacement relay at 33kV bus transfer	Nil	Unit of arching Horn in Earthing Transformer at R Phase	NA	clear	Test charge done found normal
[illegible]	5MVA Tr.I	132kV	Tripping	21.08.2022	19:11	21.08.2022	19:20	0	9	1.344	NA	Nil	Due to Bangtar line, since tripped coil got jammed, feeder was not able to tripped	NA	clear	Tripped due to bangtar fdr,Test charge done found normal
[illegible]	5MVA Tr.II	132kV	Tripping	21.08.2022	19:11	21.08.2022	19:20	0	9	1.308	NA	Nil	Due to Bangtar line, since tripped coil got jammed, feeder was not able to tripped	NA	clear	Tripped due to bangtar fdr,Test charge done found normal
[illegible]	Nangkor- Deothang I/C	132kV	Shutdown	25.08.2022	[illegible]	25.08.2022	16:55	[illegible]	[illegible]	-48.132	NA	Nil	NA	For ROW cutting from location from ND45 to 53	Clear	Shutdown taken as per NA/BPC/BPSO/PSOD/VOL-1/2022/[illegible] and opening code [illegible] from Tshering Choden,BPSO Thimphu. Charged after workpermit returned with closing code 15 given by MBS Kaidon from BPSO. found normal

Division:	SMD DEOTHANG
Substation:	132/33/11kV Nganglam Substation
Month:	sREP!

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(rt)	No. of Customers Interrupted (Nl)
02	Nganglam	132kV Nganglam-DCCL Factory	Fault	Transmission Line	01-08-2022 05:11:00	01-08-2022 05:14:00	Yes	Tripped on Overcurrent & Earth Fault (50A & 50C)	00:03:00		1
03	Nganglam	132kV Nganglam-DCCL Factory	Fault	Transmission Line	01-08-2022 07:14:00	01-08-2022 07:26:00	Yes	Tripped on Overcurrent & Earth Fault (50A & 50C)	00:12:00		130
09	Nganglam	132kV Nganglam-Tintibi	Fault	Transmission Line	03-08-2022 10:44:00	03-08-2022 10:53:00	No	Tripped on Earth Fault. Fault details; IA= 447.5A IB= 7.227A IC= 6.750A IN= 437.44 VAN= 141.8kV VBN= 131.5kV VCN= 125.2kV	00:09:00		0
14	Nganglam	132kV Nganglam-Tintibi	Fault	Transmission Line	06-08-2022 12:10:00	06-08-2022 12:22:00	No	Tripped on over current.Realy opted 86.Fault Zone=1 Fault Duration=76.74ms.R elay tripped time=80.06ms.Fault loc=15.2Km.IA=1.579KA.IB=1.607KA.IC=137.7A.VAN=137.7A. VBN=9.001KV.VCN=83.07KV.Fault Resistance=160.5ms	00:12:00		0
15	Nganglam	132/33kV, 5MVA Transformer-1	Fault	Substation	06-08-2022 12:10:00	06-08-2022 12:14:00	Yes	Tripped due to 132 kV Nganglam-Tingtibi	00:04:00		3244
29	Nganglam	132/33kV, 5MVA Transformer-1	Fault	Distribution Line	14-08-2022 14:24:00	14-08-2022 14:27:00	Yes	Tripped on Overcurrent	00:03:00		3244
30	Nganglam	132/33kV, 5MVA Transformer-1	Fault	Substation	14-08-2022 14:27:00	14-08-2022 14:30:00	Yes	Tripped on overcurrent due to 33kV Druk DYP feeder.(Feeder CB not Operated)	00:03:00		3244
36	Nganglam	132/33kV, 5MVA Transformer-1	Fault	Substation	15-08-2022 15:16:00	15-08-2022 15:18:00	Yes	5MVA trs (LV) side triped due to 33kV DCCL fdr on E/F	00:02:00		3244
37	Nganglam	132/33kV, 5MVA Transformer-1	Fault	Distribution Line	18-08-2022 06:45:00	18-08-2022 06:47:00	Yes	5MVA trs-1 (HV & LV)tripsd due to 33kV Decheling feeder	00:02:00		1458
42	Nganglam	132/33kV, 5MVA Transformer-1	Fault	Distribution Line	20-08-2022 07:18:00	20-08-2022 07:22:00	Yes	Tripped on Overcurrent due to 33kV Panbang feeder fault while extending supply from Thinlegang LDS.	00:04:00		339
51	Nganglam	132/33kV, 5MVA Transformer-1	Fault	Distribution Line	23-08-2022 11:41:00	23-08-2022 11:52:00	Yes	Tripped due to 33kV Dechanding Feeder Fault	00:11:00		3244
52	Nganglam	132/33kV, 5MVA Transformer-1	Fault	Distribution Line	23-08-2022 22:12:00	23-08-2022 22:13:00	Yes	Tripped on Overcurrent. The 5MVA Tr-1 is kept in Idle Charged and 5MVA Transformer is put inservice	00:01:00		3244
53	Nganglam	132/33kV, 5MVA Transformer-2	Shutdown	Distribution Line	23-08-2022 18:25:00	23-08-2022 18:26:00	No	5MVA Transformer was put in Parallel with 5MVA transformer after the Installation of 2Nos. of CB Interrupter at 5MVA Tr-1 LV side and 5MVA Transformer was kept in Idle charged	00:01:00		0
67	Nganglam	132kV Nganglam-Nangkhor	Shutdown	Transmission Line	31-08-2022 04:02:00	31-08-2022 05:50:00	No	CB could not Closed at Nangkhor end after tripping. BPSO Instructed us to Open CB at our end and Closed first at Nangkhor end.	01:48:00		0
68	Nganglam	132kV Nganglam-Nangkhor	Shutdown	Transmission Line	31-08-2022 13:30:00	31-08-2022 15:03:00	No	To do CB maintance at Nangkhor S/S.	01:33:00		0

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

03/BPC/SMD/MSS/2022/272

Date: 01.08.2022

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	Weather Condition	Remarks
				Date	Time	Date	Time	(Hrs)	(Min)		Protection Relay Optd	Fault Details (As recorded by relay)				
132kV Feeders																
1	15MVA Transformer	132kV	Tripping	02-08-2022	20:38 hrs	02-08-2022	20:42 hrs	0	5	0.22	EFHPTOC1, REF615	***Directional -O/C & E/F Relay:*** Tripped on E/F & O/C: IL1= 506.92A, IL2= 242.57A, IL3= 208.13A, Frequency= 49.98Hz & tripping relay 86 & B operated at our end	Tripped by transient fault	-	sunny	Grid failed. Deothang, Rangia and P/Thang f/b tripped at the same time.
2	Deothang Feeder	132kV	Tripping	03-08-2022	20:40 hrs	03-08-2022	20:43 hrs	0	3	-55.1	EFHPTOC1, REF615	***Directional -O/C & E/F Relay:*** Tripped on E/F & O/C: IL1= 678A, IL2= 308.4A, IL3= 205.6A, Frequency= 49.98Hz & tripping relay 86 & B operated at our end	Tripped by transient fault	-	Rainy	charged in coordination with BPSO
3	Phuntsholing feeder	132kV	Tripping	03-08-2022	20:40 hrs	03-08-2022	20:54 hrs	0	14	-17.51	EFHPTOC1, REF615	***Directional -O/C & E/F Relay:*** Tripped on E/F & O/C: IL1= 736.1A, IL2= 75.6A, IL3= 25.1A, Frequency= 50.10Hz & tripping relay 86 & B operated at our end	Tripped by transient fault	-	Heavy Rainfall	coordinated with BPSO about the charging sequence of feeders. Charged as per their instruction
4	Rangia Feeder	132kV	Tripping	03-08-2022	20:40 hrs	03-08-2022	21:32 hrs	0	52	46.35	EFHPTOC1, REF615	***Directional -O/C & E/F Relay:*** Tripped on E/F & O/C: IL1= 427.2A, IL2= 172.5A, IL3= 99.6A, Frequency= 49.98Hz & tripping relay 86 & B operated at our end	Tripped by transient fault	-	Heavy Rainfall	charging code: BPSO(1879), NLDC, INDIA, 387 and NERLDC, INDIA(5041
5	15MVA Transformer	132/33kV	Tripping	06-08-2022	09:39 hrs	06-08-2022	09:50 hrs	0	11	0.31	EFHPTOC1, REF615	***Directional -O/C & E/F Relay:*** Tripped on E/F & O/C, Frequency= 49.90Hz & tripping relay 86A operated at our end	Tripped by transient fault	-	Rainfall	Charged by verbal instruction from BPSO
6	15MVA Transformer	132/33kV	Tripping	12-08-2022	12:44 hrs	12-08-2022	12:50 hrs	0	6	0.17	Distance protection, REL650	***O/C & E/F Relay operated:*** Tripped on E/F & O/C: IL1= 351A, IL2= 0.60A, IL3= 0.60A, Frequency= 50.10Hz & tripping relay 86 & B operated at our end	Transient fault	-	sunny	-
7	Phuntsholing feeder	132kV	shutdown	13-08-2022	09:05 hrs	13-08-2022	17:11 hrs	8	6	-16.52	-	-	-	for clearing right of way of line	sunny	shutdown taken by TLMSD, Phuntsholing
8	15MVA Transformer	132/33kV	Tripping	18-08-2022	20:21 hrs	18-08-2022	20:32 hrs	0	10	1.97	Distance protection, REL650	***Directional -O/C & E/F Relay:*** Tripped on E/F & O/C: IL1= 16.5A, IL2= 111.8A, IL3= 316.1A, Frequency= 49.92Hz & tripping relay 86 & B operated at our end	Transient fault	-	cloudy	-
9	Phuntsholing feeder	132kV	Tripping	21-08-2022	17:18 hrs	21-08-2022	17:21 hrs	0	3	-17.84	DEFLPDEF1, REF615	***Directional -O/C & E/F Relay:*** Tripped on E/F & O/C, Frequency= 50.03Hz & tripping relay 86 & B operated at our end	Transient fault	-	rainfall	At 17:18hrs 132kV Deothang and Phuntsholing feeder tripped at the same time due to o/c and e/f. charged both of them in coordinating with BPSO
10	Deothang Feeder	132kV	Tripping	21-08-2022	17:18 hrs	21-08-2022	17:27 hrs	0	9	-48.14	DEFLPDEF1, REF615	***Directional -O/C & E/F Relay:*** Tripped on E/F & O/C, Frequency= 50.01Hz, tripping relay 86 & B operated at our end	Transient fault	-	Rainfall	Charging code: 153.
11	15MVA Transformer	132/33kV	Tripping	23-08-2022	11:34 hrs	23-08-2022	11:37 hrs	0	3	0.2	Distance protection, REL650	tripping relay 86A and B and SEF operated.	-	-	rainy	charged the transformer by verbal instruction from BPSO
12	15MVA Transformer	132/33kV	Tripping	25-08-2022	17:09 hrs	25-08-2022	17:28 hrs	0	19	0.21	Distance protection, REL650	***Directional -O/C & E/F Relay:*** Tripped on E/F & O/C: IL1= 3.42A, IL2= 4.2A, IL3= 64.48A, Frequency= 49.90Hz & tripping relay 86 & B operated at our end	Transient fault	-	clear	coordinated with BPSO and charged.
13	15MVA Transformer	132/33kV	Tripping	26-08-2022	16:20 hrs	26-08-2022	16:23 hrs	0	3	0.38	Distance protection, REL650	tripping relay 86A, B and SEF operated.	Transient fault	-	clear	coordinated with BPSO and charged.
14	15MVA Transformer	132/33kV	Tripping	31-08-2022	11:38 hrs	31-08-2022	11:42 hrs	0	4	0.29	Distance protection, REL650	tripped on O/C & E/F, 50/51 trip, SEF protection trip.	Transient fault	-	rainy	coordinated with BPSO and charged.
15	15MVA Transformer	132/33kV	Tripping	31-08-2022	18:39 hrs	31-08-2022	18:43 hrs	0	4	0.08	Distance protection, REL650	tripped on O/C & E/F, 50/51 trip, SEF protection trip.	-	-	Sunny	-

September 2022

Division:	SMD DEOTHANG
Substation:	132/33/11kV Kanglung Substation
Month:	Sep-22

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 (if tripped)	Reason for Shutdown (if shutdown)	Weather Condition during the	Remarks
				Date	Time	Date	Time	(Hrs)	(Min)		Protection Relay Optd (name of relay)	Fault Details (As recorded by relay)				
132kV																
1	Corlung	132	Tripped	08.09.2022	15:56	08.09.2022	18:10	2	14	-18.332		Distance Relay Operated Started phase = A, N, IA = 907.5A, IB4 = 80.1A, IC = 106.4A, IN = A, Fault Location = 1.3348km. Fault in = Zone 1.	R phase Disc insulator punctured and Snapped on R phase CT terminal and main bus	NA	Cloudy	Supply tripped on Distance relay operated and R phase disc insulator punctured and snapped on R phase CT terminal and main bus. So kept under tripped position and done the re- stringing work. Charging Code from BPSO : 257 (Mrs. Karma Yangdon)
2	Phuntsholing	132	Tripped	08.09.2022	15:56	08.09.2022	18:10	2	14	18.288		G.R - A/B Trip relay operated	R phase Disc insulator punctured and Snapped on R phase CT terminal and main bus	NA	Cloudy	Supply tripped on Distance relay operated and R phase disc insulator punctured and snapped on R phase CT terminal and main bus. So kept under tripped position and done the re- stringing work. Charging Code from BPSO : 258 (Mrs. Karma Yangdon)

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

BPC/SMD-132kV NSS/2022/03/981

Date: 01.09.2022

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	Weather Condition during the	Remarks
				Date	Time	Date	Time	(Hrs)	(Min)		Protection Relay Optd	Fault Details (As recorded by relay)				
132kV Feeders																
1	Nangkor-Deothang Line	132kV	Tripping	04-09-2022	03:45 hrs	04-09-2022	03:59 hrs	0	14	42.0	MiCOMP40 Agile	Distance Relay Relay: Trip @ ABC start @ ABCN. Start element Distance, TOC start, distance trip Z1, fault duration 60.19ms, Fault location=9.737KM. IA=1.612kA, IB=1.617kA, IC=1.998kA, VAN=7.243kV, VBN=7.228kV, VCN=7.926kV fault resistance=433.3mΩ & trip relay 86 operated.	Tripped on fault	-	Heavy rainfall with thunder & lightning	Informed to BPSO & charged the feeder
2	Nangkor-Deothang Line	132kV	Tripping	04-09-2022	05:41 hrs	04-09-2022	05:45 hrs	0	4	44.6	MiCOMP40 Agile	Distance Relay Relay: Trip @ R start @ RN. Start element Distance, TOC start, distance trip-Z1, fault duration-69.95ms, Fault location=20.88KM. IA=72.69A, IB=1.717kA, IC=208.7A, VAN=70.92kV, VBN=11.36kV, VCN=66.23kV fault resistance=1.414Ω.	Tripped on fault	-	Heavy rainfall with thunder & lightning	Informed to BPSO & charged the feeder
3	Nangkor-Deothang Line	132kV	Tripping	04-09-2022	05:51 hrs	04-09-2022	10:17 hrs	4	26	44.6	MiCOMP40 Agile	Distance Relay Relay: Trip @ R start @ RN. Start element Distance, TOC start, distance trip-Z1, fault duration-69.93ms, Fault location=19.82KM. IA=5.874A, IB=1.978kA, IC=5.064A, VAN=70.74kV, VBN=14.1kV, VCN=67.17kV fault resistance=1.356Ω.	Tripped on fault	-	Heavy Rainfall	Informed to BPSO & as instructed test charged at 05:56 hrs & 06:50 hrs but couldn't stand showing same fault
4	Nangkor-Deothang Line	132kV	Tripping	04-09-2022	23:55 hrs	05-09-2022	15:08 hrs	15	13	48.0	MiCOMP40 Agile	Distance Relay Relay: Trip @ R start @ RN. Start element Distance, TOC start, distance trip-Z1, fault duration-59.95ms, relay trip time-79.93ms, Fault location=20.08KM. IA=124.7A, IB=1.763kA, IC=250.5A, VAN=76.67kV, VBN=33.84kV, VCN=66.95kV fault resistance=1.107Ω.	Tripped on fault	-	Heavy Rainfall	Informed to BPSO & as instructed test charged at 23:59 hrs & 00:21hrs of 05/09/2022 but couldn't stand showing same fault.
5	132/33kV,5MVA-I	132kV	Tripping	08-09-2022	11:22 hrs	08-09-2022	11:24 hrs	0	2	0.54	-	Tripping relay 86 operated	Tripped on feeder fault	-	Cloudy	Tripped at the instant of 33kV Yurung feeder tripping
6	132/33kV,5MVA-II	132kV	Tripping	08-09-2022	11:22 hrs	08-09-2022	11:25 hrs	0	3	0.36	Non directional PROTN Relay operated	O/C relay-50A & trip relay 86 operated	Tripped on feeder fault	-	Cloudy	Tripped at the instant of 33kV Yurung feeder tripping
7	132/33kV,5MVA-I	132kV	Tripping	08-09-2022	12:52 hrs	08-09-2022	12:55 hrs	0	3	0.45	Non directional PROTN Relay operated	O/C relay-50A & trip relay 86 operated	Tripped on feeder fault	-	Cloudy	Tripped at the instant of 33kV Yurung feeder tripping
8	132/33kV,5MVA-II	132kV	Tripping	08-09-2022	12:52 hrs	08-09-2022	12:56 hrs	0	4	0.27	Non directional PROTN Relay operated	O/C relay-50A & trip relay 86 operated	Tripped on feeder fault	-	Cloudy	Tripped at the instant of 33kV Yurung feeder tripping
9	Nangkor-Deothang Line	132kV	Tripping	22-09-2022	04:20 hrs	22-09-2022	08:59 hrs	4	39	46.8	MiCOMP40 Agile	Trip @ R start @ RN. Start element Distance, TOC start, distance trip-Z1, fault duration-75.10ms, relay trip time-80.0ms Fault location=20.8KM towards Deothang. IA=14.2A, IB=1.779kA, IC=241.3A, VAN=69.6kV, VBN=33.22kV, VCN=65.9kV fault resistance=1.3341Ω.	Tripped on fault	-	Rainfall	Informed to BPSO & test charged at 04:26 hrs & 07:09 hrs, but couldn't stand
10	Nangkor-Deothang Line	132kV	Tripping	23-09-2022	07:00 hrs	23-09-2022	07:38 hrs	0	38	27.9	MiCOMP40 Agile	Trip @ ABC start @ BN. Start element Distance, TOC start, distance trip Z2,AR lock out shot>, fault duration 396.0ms, relay trip time 79.99ms Fault location=23.12KM towards Deothang. IA=30.2A, IB=1.184kA, IC=254.3A, VAN=67.83kV, VBN=15.98kV, VCN=64.81kV fault resistance=1.008Ω. Fault zone 2	Tripped on fault	-	Rainfall	Informed to BPSO & charged the feeder.

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

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 Minuts(ri)	No. of Customers Interrupted (Ni)
3	Nganglam	132/33kV, 3MVA Transformer-2	Fault	Transmission Line	02-09-2022 18:01	02-09-2022 18:05	No	Trippeed due to 33kv Panabog feeder	00:04:00	4	0
14	Nganglam	132kV Nganglam-Tintibi	Fault	Transmission Line	08-09-2022 11:29	08-09-2022 11:42	No	feeder tripped due to earth fault. 86 relay operated,IA=472.7A.IB =57.17A IC=74.40A.I N=530.1A.VAN=109. 6kv.VBN=77.98kv .VCN=125.2kv	00:13:00	13	0
15	Nganglam	132kV Nganglam-Tintibi	Fault	Transmission Line	08-09-2022 12:03	08-09-2022 12:09	No	Fdr Tripped due to Earth fault. 86 relay operated,IA=382.7A,IB =55.87A,IC=66.53A,I N=438.7A	00:06:00	6	0
52	Nganglam	132kV Nganglam-Tintibi	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- 1.352KA IN- 253.5A Fault duration 73.31ms Relay Trip Time 79.98ms Fault Location 4.689km Fault resistance 513.6ms A/R Loukout	00:05:00	5	0
53	Nganglam	132kV Nganglam-Tintibi	Fault	Transmission Line	23-09-2022 05:30	23-09-2022 12:48	No	Tripped on Overcurrent. Fault detai;s; IA- 1.352KA IB- 1.279KA IC-1.203KA IN- 118.9A Fault duration 73.28ms Relay Trip Time 79.94ms Fault Location 4.913km Fault Resistance 643.8ms	07:18:00	438	0
55	Nganglam	132kV Nganglam-DCCL Factory	Fault	Transmission Line	23-09-2022 05:47	23-09-2022 05:53	Yes	Over Current	00:06:00	6	1
63	Nganglam	132kV Nganglam-Tintibi	Fault	Transmission Line	25-09-2022 02:38	25-09-2022 02:49	No	Earth Fault	00:11:00	11	0

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

03/BPC/SMD/MSS/2022/272

Dated 01.08.2022

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 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	Weather Condition	Remarks
132kV Feeders																
1	15MVA Transformer	132/33kV	Tripping	01-09-2022	15:27 hrs	01-09-2022	15:32 hrs	0	5	0.37	RET650, transformer differential relay	Tripped on E/F & O/C : IL1= 5.25A, IL2= 6.86A, IL3= 174.36A, Frequency= 49.98Hz & tripping relay 86A & SEF operated at our end	-	-	sunny	Transformer was tripped while charging of 33kV S/jongkhar feeder. Charged after receiving verbal instruction from BPSO
2	15MVA Transformer	132/33kV	Tripping	01-09-2022	18:53 hrs	01-09-2022	19:58 hrs	0	5	0.25	RET650, transformer differential relay	Tripped on E/F & O/C : IL1= 4.44A, IL2= 6.17A, IL3= 188.16A, Frequency= 49.98Hz & tripping relay 86A & SEF operated at our end	-	-	sunny	33kV S/jongkhar feeder was not charged, and the transformer was tripped while test charging the feeder.
3	15MVA Transformer	132/33kV	Tripping	02-09-2022	16:46 hrs	02-09-2022	16:59 hrs	0	5	0.31	DEFLPDEF1, REF615	Directional -O/C & E/F Relay: Tripped on E/F & O/C : IL1= 0.012xIn, IL2= 0.018xIn, IL3= 0.467xIn, Frequency= 50.11Hz & tripping relay 86A & SEF operated at our end	-	-	sunny	tripped while charging 33kV S/jongkhar feeder.
4	15MVA Transformer	132/33kV	Tripping	04-09-2022	23:50 hrs	04-09-2022	23:54 hrs	0	4	1.04	RET650, transformer differential relay	Directional -O/C & E/F Relay: Tripped on E/F & O/C : IL1= 171.04A, IL2= 17.37A, IL3= 18.23A, Frequency= 50.10Hz & tripping relay 86 operated.	Tripped by transient fault	-	Heavy Rainfall	charged verbally by the instruction of BPSO
5	Deothang Feeder	132kV	Tripping	04-09-2022	00:18 hrs	04-09-2022	00:24 hrs	0	6	-42.21	DPHLPDOC1, REF615	Directional -O/C & E/F Relay: Tripped on E/F & O/C : IL1= 3.337xIn, IL2= 3.798xIn, IL3= 3.553xIn, Frequency= 50.11Hz & tripping relay 86A operated at our end.	Tripped by transient fault	-	Rainfall	Charged by verbal instruction from BPSO
6	15MVA Transformer	132/33kV	Tripping	06-09-2022	9:30 hrs	06-09-2022	9:33 hrs	0	3	1.25	EFHPTOC1, REF615	Directional -O/C & E/F Relay: Tripped on E/F & O/C : IL1= 0.575xIn, IL2= 0.949xIn, IL3= 0.469xIn, Frequency= 50.10Hz & tripping relay 86A operated at our end.	Transient fault	-	sunny	charged after obtaining verbal clearance from BPSO
7	15MVA Transformer	132/33kV	Tripping	09-09-2022	7:32 hrs	09-09-2022	7:35 hrs	0	3	2.94		Fault values not recorded by the relay. Frequency= 50.10Hz & tripping relay 86A & SEF operated at our end.	-	-	sunny	-
8	15MVA Transformer	132/33kV	Tripping	10-09-2022	14:11 hrs	10-09-2022	14:13 hrs	0	3	1.43	EFHPTOC1, REF615	Directional -O/C & E/F Relay: Tripped on E/F & O/C : IL1= 0.487xIn, IL2= 0.472xIn, IL3= 0.619xIn, Frequency= 50.12Hz & tripping relay 86A operated at our end.	Transient fault	-	cloudy	-
9	15MVA Transformer	132/33kV	Tripping	16-09-2022	15:32 hrs	16-09-2022	16:11 hrs	0	19	1.34		Fault values not recorded by the relay. Frequency= 50.11Hz & tripping relay 86A & SEF operated at our end.	Transient fault	-	rainfall	-
10	15MVA Transformer	132/33kV	Tripping	22-09-2022	19:36 hrs	22-09-2022	19:39 hrs	0	3	0.34		Fault values not recorded by the relay. Frequency= 50.11Hz & master tripping relay 86A operated.	Transient fault	-	sunny	charged after obtaining verbal clearance from BPSO
11	15MVA Transformer	132/33kV	Tripping	29-09-2022	04:16 hrs	29-09-2022	04:19 hrs	0	3	0.14		Fault values not recorded by the relay. Frequency= 50.12Hz & master tripping relay 86A operated.	-	-	sunny	charged after obtaining verbal clearance from BPSO

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

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 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	Weather Condition	Remarks
8	132 kV Kanglung Feeder	132 kV	Tripping	08-09-2022	15:55 hrs	08-09-2022	18:08 hrs	2	13	19.720	Distance Relay (P442) and Back up Relay (P14D)	**Distance Relay (P442)** operated on Zone 1 trip, Recorded fault values : Started phase-ABCN, Tripped phase-A. Started elements Distance,Over voltage start V>1, Distance Trip Z 1, V<1 Alarm, System Frequency 49.85, fault duration-3.341 ms, relay trip time-80.18 ms, fault location-16.15 km, IA-905A, IB-81.11A, IC-107.5A, VAN-12.45 kV, VBN-78.93kV, VCN-75.54 kV, Fault Resistance 3.227 Ohm, Fault in Zone-Zone 1. **Backup Relay (P14D)** : Started phase-AN, OC started I>1- 1, EF 1 start IN1>- 1, System Frequency 49.90 Hz, IA-919.5A, IB-79.89A, IC-110.1 A, VAB-83.79 KV, VBC-132.5 KV,VCA-84.99 KV, IN-877.7 A, IN Derived-877.1A, VAN-12.20kV, VBN-78.82kV, VCN-75.43kV, VN-67.24 kV.	Disc Insulator puncture at Kanglung Substation		Cloudy	At 15:55 hrs Kanglung Feeder was trip and informed to BPSO. As per information from BPSO disc insulator was punctured at Kanglung Substation. Line was charged at 18:08 hrs after rectifying the fault at Kanglung Substation.

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

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 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	Weather Condition	Remarks
27	Kanglung (IK71A)	132kV	Trip on Fault	08-09-2022	15:55	08-09-2022	18:09	2	14	18.19	Zone-2 OPTD, R-PH TRIP, OV/UV TRIP, 86A and 86B	Fault value:IL1: 889.23A,IL2:240.81A,IL3: 69.5A,IEn: 590.99A	Over current	Nil	Cloudy	At 15:55 breaker got open and after clearing the fault at Kanglung Substation. Line charged at 18:09 codination with Kanglung end after reciving closing code#258 issued by MISS Karma Yangden(BPSO).

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	Reasons of Fault	Relay Operations	Fault Location(KM)	Type of outages	Remarks
i) 132kV Above													
1	09.09.2022	09:44 hrs	09.09.2022	10:28 hrs	0	178.76	400kV Interim Circuit-1	Alipurduar	DTT	RYB phase pickup	Fault current: I1 = 0.26kA, I2 = 0.8kA, I3 = 0.26kA		
2	22.09.2022	05:54 hrs	22.09.2022	10:02 hrs	4	-315.6	400kV Mhpa line 5	Alipurduar	Over voltage	Over voltage			
3	22.09.2022	04:45 hrs	2.09.2022	06:33 hrs	1	307.74	400kV Alipur Direct line-2	Alipurduar	RY pickup	RY pickup, Ground pickup, Z2 optd	Main 1 Fault current; I1=2.43kA, I2=1.18kA, I3=0.8kA, Fault Dist = -56.5km Main 2 Fault current; I1=2.38kA, I2=2.97kA, I3=1.336kA, Fault Dist = -56.4km		
4	22.09.2022	05:54 hrs	22.09.2022	07:51 hrs	1	391.96	400kV Alipur Direct line-1	Alipurduar	Over voltage	Over voltage			
5	4.09.2022	02:47hrs	24.09.2022	04:41hrs	1	-292.33	400kV Mhpa line 1	Alipurduar	Over voltage	Over voltage	Over voltage, RYB tripped, zone 1 optd,		
6	24.09.2022	02:47hrs	24.09.2022	04:25hrs	1	-4.01	500MVA ICT		Over voltage	Over voltage	RYB phase tripped		
7	24.09.2022	03:10hrs	24.09.2022	04:27hrs	1	-292.33	400kV MHPA line 3	Alipurduar	Over voltage	Over voltage	RYB phase tripped, zone 1 opted		
8	24.09.2022	03:10hrs	24.09.2022	03:25hrs	0	214.41	400kV Alipur Direct line-1	Alipurduar	Over voltage	Over voltage	RYB phase tripped on Over voltage		
9	24.09.2022	03:10hrs	24.09.2022	05:05hrs	1	213.3	400kV Alipur Direct line-2	Alipurduar	Over voltage	Over voltage	RYB phase tripped on over voltage		
10	22.09.2022	05:54 hrs	22.09.2022	06:04 hrs	0	-20.480	80MVA ICT -2	Jigmeling SS	LV SEF trip	Relay General Trip, LV SEF trip			
11	2.09.2022	05:54 hrs	22.09.2022	07:05 hrs	1	-20.110	80MVA ICT - 1	Jigmeling SS	LV SEF trip	Relay General Trip, LV SEF trip			
12	08.09.2022	18:38hrs	08.09.2022	18:48hrs	0	62.1	132kV Tintibi Feeder	Tintibi	Earth fault	Rand Y ph trip, Eph to ground fault	41.5km	transient	
13	2.09.2022	04:56 hrs	2.09.2022	05:08 hrs	0	61.69	132kV Tintibi Feeder	Tintibi	R,Y,B phase loop	Main 1 (R,Y & B phase trip , Z1/Z2 trip, zone 1 trip	Main 1 Fault current; Ia=3.95kA, Ib=3.72kA, Ic=0.03kA Fault Dist = 24.1km		
14	22.09.2022	05:20 hrs	22.09.2022	05:29 hrs	0	61.69	132kV Tintibi Feeder	Tintibi	R,Y,B phase loop	Main 1 (R,Y & B phase trip , Z1/Z2 trip, zone 1 trip	Main 1 Fault current; Ia=3.5kA, Ib=3.69kA, Ic=3.61kA Fault Dist = 31.9km		
15	22.09.2022	06:01 hrs	22.09.2022	11:48 hrs	5	19.86	132kV Tintibi Feeder	Tintibi	R,Y,B phase loop	Main 1 (R,Y & B phase trip , Z1/Z2 trip, zone 1 trip	Main 1 Fault current; Ia=1.22kA, Ib=0.19kA, Ic=1.161kA Fault Dist = 25.3km		Line charged from Tintibi end, due to voltage issue CB at Jigmeling end kept opened as per BPSO instruction and line was taken shutdown by TMD
16	24.09.2022	02:47hrs	24.09.2022	03:29hrs	0	24.6	132kV Tintibi Feeder	Tintibi	Due to over voltage	Main 1 &2 picked up, RYBphase tripped on over voltage			
2. 220/66/33kV Dhajay Substation													
i) 66kV and above													
1	12.09.2022	19:19hrs	12.09.2022	19:33hrs	0		220kV Bus Coupler	Dhajay Substation		50/51N Relay	Substation	Tripped	Feeder restored after O&M head ,ESD Taining confirmed line clearance.
2	24.09.2022	3:10hrs	24.09.2022	3:21hrs	0	19.72	Tsirang-Jigmeling Feeder	Dhajay Substation	over current	Distance relay main 2(Z1,Z2) - Ia=634.03A, Ib=653.65A, Ic=729.24A, Ie=41.91A	Substation	Tripped	Feeder restored after O&M head ,ESD Taining confirmed line clearance
3. 132/66/33/11kV Gelephu Substation													
i) 66kV and above													
1	07.09.2022	09:30hrs	09.09.2022	16:45hrs	31	18	Gelephu-Jigmeling	Non	shutdown taken by SMG,Jigmeling	Non	Gelephu Substation	Temporary	Shutdown taken to shift the Jigmeling Panel towards Salakati Panel (Rearrangement of Panels due to Substation upgradation works)
2	24.09.2022	03:09hrs	24.09.2022	03:35hrs	16		phu-Salakati & Jigm	Gelephu & Jigmeling	Grid fail	86 relay operated	Salakati line	Temporary	Supply extended from Jigmeling at 03.22hrs

4. 132/33kV Tintibi Substation													
i) 66kV & Above													
1	08.09.2022	11:29hrs	08.09.2022	11:45hrs	0	12.43	kV Tingtbi-nanglam	32kV Tingtbi-nanglam Fe	Temporary Fault	Distance Relay:Start Phase:ABC,Trip Phase:ABC,Fault zone-1 trip,Fault location:XY 21.16 kM.	21.16kM	Temporary	
2	08.09.2022	12:04hrs	08.09.2022	12:12hrs	0	11.74	kV Tingtbi-nanglam	32kV Tingtbi-nanglam Fe	Temporary Fault	Distance Relay:Start Phase:AN,Trip Phase:ABC,Fault zone-1 trip,Fault location:XY 18.78 kM.	XY 18.79	Temporary	
3	22.09.2022	04:56hrs	22.09.2022	05:03hrs	0	-59.76	kV Tingtbi-Jigmeling	2kV Tingtbi-Jigmeling Fe	Temporary Fault	Distance Relay:Start Phase:ABN,Trip Phase:ABC,Fault zone-1 trip,Fault location:20.22kM	20.22	Temporary	
4	22.09.2022	05:20hrs	22.09.2022	05:29hrs	0	-59.76	kV Tingtbi-Jigmeling	2kV Tingtbi-Jigmeling Fe	Temporary Fault	Distance Relay:Start Phase:ABC,Trip Phase:ABC,Fault zone-1 trip,Fault location:17.64kM	17.64	Temporary	
5	22.09.2022	06:01hrs	22.09.2022	06:17hrs	0	-19.58	kV Tingtbi-Jigmeling	2kV Tingtbi-Jigmeling Fe	Temporary Fault	Distance Relay:Start Phase:ACN,Trip Phase:ABC,Fault zone-1 trip,Fault location:17.64kM	17.64	Temporary	
6	23.09.2022	03:48hrs	23.09.2022	03:53hrs	0	27.8	kV Tingtbi-nanglam	32kV Tingtbi-nanglam Fe	Temporary Fault	Distance Relay:Start Phase:BN,Trip Phase:ABC,Fault zone-1 trip,Fault location:35.22 kM.	35.22	Temporary	
7	23.09.2022	05:18hrs	23.09.2022	05:22hrs	0	33.41	kV Tingtbi-nanglam	32kV Tingtbi-nanglam Fe	Temporary Fault	Distance Relay:Start Phase:ABC,Trip Phase:ABC,Fault zone-1 trip,Fault location:41.29kM	41.29	Temporary	
8	23.09.2022	05:30hrs	23.09.2022	12:49hrs	7	33.41	kV Tingtbi-nanglam	32kV Tingtbi-nanglam Fe	Temporary Fault	Distance Relay:Start Phase:ABCN,Trip Phase:ABC,Fault zone-1 trip,Fault location:37.48kM	37.48	Temporary	
9	25.09.2022	02:38hrs	25.09.2022	02:50hrs	0	20.52	kV Tingtbi-nanglam	32kV Tingtbi-nanglam Fe	Temporary Fault	Distance Relay:Start Phase:AN,Trip Phase:ABC,Fault zone-1 trip,Fault location:34.01kM	34.01	Temporary	
10	28.09.2022	22:38hrs	28.09.2022	22:44hrs	0	43.27	kV Tingtbi-nanglam	32kV Tingtbi-nanglam Fe	Temporary Fault	Distance Relay:Start Phase:AN,Trip Phase:ABC,Fault zone-1 trip,Fault location:30.10kM	30.1	Temporary	
5. 132/33kV Yurmoo Substation													
i) 66kV & Above													
1	08.09.2022	18:40hrs	08.09.2022	18:47hrs	0	-32.9	132kV Tingtbi I/C	Yurmoo Ss	O/C Y&B	86 relay optd	Yurmoo Ss		
2	17.09.2022	02:33hrs	17.09.2022	02:40hrs	0	-35.9	132kV Tingtbi I/C	Yurmoo Ss	Undervoltage	86 relay optd	Yurmoo Ss		Charged as per the BP
3	21.09.2022	09:23hrs	21.09.2022	09:26hrs	0	-30.3	40MVA Trf-1	Yurmoo Ss	NCI wring	86 relay optd	Yurmoo Ss		Charged as per the BP
4	22.09.2022	06:02hrs	22.09.2022	06:07hrs	0	-37.5	132kV Tingtbi I/C	Yurmoo Ss	Undervoltage	86 relay optd	Yurmoo Ss		Charged as per the BP
5	23.09.2022	04:48hrs	23.09.2022	05:00hrs	0	-37.5	40MVA Trf-1	Yurmoo Ss	NCI wring	86 relay optd	Yurmoo Ss		Charged as per the BP
6	23.09.2022	04:47hrs	24.09.2022	04:49hrs	0	-36.5	132kV MHPA Line 2	Yurmoo Ss	God fail	Nil	MHPA		On dated - 24.09.2022
6. 220/33kV Dagapela Substation													
i) 66kV & Above													
1	13.09.2022	15:05hrs	13.09.2022	15:12hrs	0	26.28	Transformer II	Dagapela SS	Heavy rainfall	Master trip relay A & B	DagapelaSS Switchyard		Transformer II restored

October 2022

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Nangkor Substation
Month:	Oct-22

BPC/SMD/132kV-2NSS/2022/03/005

Date: 01.11.2022

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 of Outage (Hrs)	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
132kV Feeders														
1	Main Grid	132kV	Tripping	03-10-2022	06:24 hrs	03-10-2022	06:30 hrs	0	-	-	-	Tripped on fault	-	Supply failed from Tintibi & Motanga Substation
2	Nangkor-Deothang Line	132kV	Tripping	06-10-2022	04:30 hrs	06-10-2022	15:02 hrs	10	45.9	MiCOMP40 Agile	Distance Relay Relay: Trip Ø B,start Ø BN. Start element-Distance, distance trip-Z1, fault duration-59.88ms, relay trip time-79.83ms, Fault location=20.50KM towards Deothang, IA=139.5A, IB=1.909kA, IC=239.5A, VAN=70.61kV, VBN=35.25kV, VCN=66.51kV,fault resistance=3.050Ω	Tripped on fault	-	Informed to BPSO & as instructed test charged at 04:44 hrs & 10:22 hrs & 14:48 hrs but couldn't stand with operation of distance relay.
3	Nangkor-Deothang Line	132kV	Tripping	10-10-2022	00:08 hrs	10-10-2022	16:49 hrs	16	47.43	MiCOMP40 Agile	Distance Relay Relay: Trip Ø B,start Ø BN. Start element-Distance, TOC start, distance trip-Z1, fault duration-61.65ms,Fault location=20.43KM, IA=159.6A, IB=1.899kA, IC=241.0A, VAN=71.26kV, VBN=35.14kV, VCN=67.42kV,fault resistance=2.881Ω.	Tripped on fault	-	Informed to BPSO & as instructed test charged at 00:15 hrs & 00:22hrs but couldn't stand with operation of distance relay.
4	Nangkor-Deothang Line	132kV	Tripping	11-10-2022	04:03 hrs	12-10-2022	17:44	37	44.5	MiCOMP40 Agile	Distance Relay Relay: Trip Ø B,start Ø BN. distance trip-Z1, fault duration-51.63ms, relay trip time-79.94ms,Fault location=20.33KM, IA=13.3A, IB=1.899kA, IC=217.9A, VAN=71.0kV, VBN=34.98kV, VCN=67.17kV,fault resistance=2.833Ω	Tripped on fault	-	Informed to BPSO & as instructed test charged at 04:40hrs, 04:55hrs & 09:15 hrs but couldn't stand with operation of distance relay. Feeder CB kept opened there after & on 12/10/22, at 08:04 hrs all switch gear operated as per approved shut down taken by TMD, Nangkor & shut down code=003 from BPSO.
5	132/33kV Transformer-1 (5MVA)	132kV	Tripping	19-10-2022	14:11 hrs	19-10-2022	14:13 hrs	0	0.56	Non directional PROTN Relay operated	O/C relay- 50A & trip relay 86 optd	Transient fault	-	Tripped at the instant of 33kV Yurung feeder tripping

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Deothang Substation
Month:	October 2022

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 of Outage (Hrs)	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
2	Nangkhor-Deothang line	132kV	Tripping	06.10.2022	4:30	06.10.2022	6:32	0	37.368	OC & EF	IA=139.6A,IB=219kA,IC=229.5IN=1.152kA,Test char val=4.684A,1.452kA,5.399A,1.456kA	Unknown	NA	Test charge was done as per the instruction of BPSO and found normal
3	Deothang-Motanga Line	132kV	Tripping	06.10.2022	4:30	06.10.2022	18:39	0	0.288	OC & EF	Fault Value=IA=42.68, IB=1.114KV, IC=324A,IN=807.4. Test charge value=IA=146.9A, IB=1.313KA, IC=132.7A, IN=1.035	Unknown	NA	Test charge was done as per the instruction of BPSO and found normal
4	Deothang-Motanga Line	132kV	Tripped	06.10.2022	10:31	06.10.2022	10:35	0	41.85	OC	Fault Value=IA=151.8A, IB=1.323KA, IC=131.6A	Unknown	NA	when Nangkor Deothang feeder was test charge feeder got tripped and test charge done withstand.
8	Nangkhor-Deothang line	132kV	Tripping	10.10.2022	0:05	10.10.2022	13:29	13	-48.384	OC & EF	IA=159.1A,IB=1.271kA,IC=241.4AIN=1.181kA,Distance relay -34.72kM, Ia-157.3A,Ib-1.271kA, Ic-239.7A and zone 2 trip	Unknown	To open Jumpering at ND 61	Test charge from Nangkor ss but line didn't stand.Test charge done with the closing code 1502 by Madam Kinley Wangmo(BPSO) after Jumpering out from ND 61 at dead end and kept for IDLE charged found normal.
9	Deothang-Motanga Line	132kV	Tripping	10.10.2022	0:05	10.10.2022	1:13	1	47.196	OC & EF	IA=75.72A,IB=1.156kA,IC=343.6AIN=821.9A.	Unknown	NA	Supply back fed from Motanga ss as there was line fault between Nangkor to Deothang line.
12	Nangkhor-Deothang line	132kV	Tripping	11.10.2022	2:56	11.10.2022	3:02	0	-46.116	O/C	IA=1.458kA,IB=1.492kA,IC=1.405kA(Distance relay)	Unknown	NA	After confirming from BPSO test charge done and found normal at 3:02hrs.
13	Nangkhor-Deothang line	132kV	Tripping	11.10.2022	4:41	12.10.2022	17:46	37	-46.08	E/F	IA=121.9A, IB=1.253KA, IC=219.1A,IN=1.173KA. Test charge value at 4:48hrs IA=4.698A, IB=1.493KA, IC=5.520A, IN=1.497kA.	Unknown		Test charge from Nangkor ss but line didn't stand. Again test charged at 9:15hrs Deothang Ss Motanga fdr got trip from Motanga end and at our end breaker are in normal condition. Supply resumed from Motanga end after opening the nangkor Breaker with code 079 from BPSO(Madam Jangchub). Fdr charged after changing insulator in Y-phase from location 40 to 43 with the code 1516 from BPSO(Madam Kinley wangmo)
14	Deothang-Motanga Line	132kV	Tripping	11.10.2022	4:41	11.10.2022	5:06	0	44.192	E/F	IA=43.14A,IB=1.129A,IC=317A,IN=839.5A.Test charge value:IA=149.1A,IB=1.336kA,IC=138.6A,IN=1.049kA.	Unknown	NA	While doing test charge of Nangkhor-Deothang line, breaker got tripped at Motang end Supply back fed from Motanga ss as there was line fault between Nangkor to Deothang line.

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Nganglam Substation
Month:	October 2022

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 of Outages Hrs	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
132kV														
1	132kV Nganglam-Tintibi	132kV	Grid Fail	03-10-2022	06:25:00	03-10-2022	06:33:00	00:08:00	-15.16		Black out at Substation	Grid Fail		No CB is operated at our end
2	132kV Nganglam-Nangkhor	132kV	Grid Fail	03-10-2022	06:25:00	03-10-2022	06:29:00	00:04:00	-0.04		Black out at Substation	Grid Fail		No CB is operated at our end
3	132/33kV, 5MVA Transformer-1	132kV	Fault	08-10-2022	18:18:00	08-10-2022	18:19:00	00:01:00	0.82		Tripped LV side Only. Supply restored from Transformer-II			
5	132/33kV, 5MVA Transformer-1	132kV	Fault	30-10-2022	13:09:00	30-10-2022	15:02:00	01:53:00	0.888		Dish Punctured at 33kV Main Bus	Dish punctured		33kV Main Bus- Dish insulator got punctured. All 33kV and 11kV customers are affected.

Division:	SMD-DEOTHANG
Substation:	132/33kV Motanga Substation
Month:	October 2022

Sl. No.	Name of Feeder	Voltage Level	Type of Outage (Shutdown/Tripping)	Shutdown/Tripping Time		Normalization Time		Duration of Outage (Hrs)	MW before Outage (MW)	Tripping Details		Type/Cause of Fault	Reason for Shutdown	Remarks
				Date	Time	Date	Time			Protection Relay Operd	Fault Details (As recorded by relay)			
132kV Feeders and Transformer(HV)														
1	15MVA Transformer	132/33kV	Tripping	02-10-2022	07:47 hrs	02-10-2022	07:51 hrs	0	0.17	RET650, transformer differential relay	Tripping relay 86A & SEF operated, trip values not displayed by the relay	Transient fault	-	BPSO Charging code: 1463.
2	15MVA Transformer	132/33kV	Tripping	02-10-2022	14:24 hrs	02-10-2022	14:27 hrs	0	0.23	DPHLPDOC1, REF615	Tripped on E/F & O/C . IL1= 0.913Ala, IL2= 0.454Ala, IL3= 0.48ala, RET650 Relay Indication: Differential protection optd, R-phase trip, Y-phase trip, REC650 indication 86A operated.	Transient fault	-	Charged after receiving verbal instruction from BPSO.
3	Deothang Feeder	132kV	Tripping	03-10-2022	06:24 hrs	03-10-2022	06:29 hrs	0	-37.29	REL670, Distance Relay	***Directional -O/C & E/F Relay:*** Tripped on E/F & O/C . IL1= 179.98A, IL2= 98.16A, IL3= 94.79A, Frequency= 50.12Hz & tripping relay 86A, 86B operated.	Transient fault	-	BPSO Charging code: 1468.
4	15MVA Transformer	132/33kV	Tripping	05-10-2022	11:11 hrs	05-10-2022	11:23 hrs	0	0.17	RET650, transformer differential relay	Tripped on O/C and E/F. Trip values not displayed. Frequency= 50.10Hz & tripping relay REC670 Indication: 86A/B operated, R, Y & B trip.	Transient fault	-	BPSO Charging code: 1476.
5	15MVA Transformer	132/33kV	Tripping	05-10-2022	11:27 hrs	05-10-2022	11:39 hrs	0	0.17	DPHLPDOC1, REF615	***Directional -O/C & E/F Relay:*** Tripped on E/F & O/C . IL1= 0.250ala, IL2= 0.175ala, IL3= 0.125ala, Frequency= 50.12Hz & tripping relay 86A operated at our end.	Tripped by transient fault	-	BPSO Charging code: 1477.
6	15MVA Transformer	132/33kV	Tripping	05-10-2022	16:51 hrs	05-10-2022	16:52 hrs	0	0.17	RET650, transformer differential relay	Differential relay, RET650 Indication: IL1= 59.47A, IL2= 42.92A, IL3= 22.58A, Frequency= 50.12Hz, & tripping relay 86A operated, R, Y & B trip at our end.	Transient fault	-	BPSO Charging code: 1478.
7	15MVA Transformer	132/33kV	Tripping	06-10-2022	14:22 hrs	06-10-2022	14:34 hrs	0	0.26		Fault values not recorded by the relay. Frequency= 50.16Hz & tripping relay 86A & SEF operated at our end.		-	Test charged at 14:20hrs but did not hold and tripped on same fault. At 14:34hrs charged with the instruction from BPSO, code: 1482
8	15MVA Transformer	132/33kV	Tripping	08-10-2022	14:09 hrs	08-10-2022	14:13 hrs	0	0.26	DPHLPDOC1, REF615	***Directional -O/C & E/F Relay:*** DPHLPDOC1, IL1= 0.242Ala, IL2= 0.154Ala, IL3= 130.2Ala,Tripped on O/C , Frequency= 50.03Hz & tripping relay 86A operated at our end.	Transient fault	-	-
9	15MVA Transformer	132/33kV	Tripping	08-10-2022	10:02 hrs	08-10-2022	10:04 hrs	0	0.28	DPHLPDOC1, REF615	Fault values not recorded by the relay. Frequency= 50.08Hz & tripping relay 86A & SEF operated at our end.	Transient fault	-	-
10	Deothang Feeder	132kV	Tripping	11-10-2022	02:57 hrs	11-10-2022	03:04 hrs	0	-42.8	REL670, Distance Relay	***Directional -O/C & E/F Relay:*** Tripped on E/F & O/C . IL1= 1788.97A, IL2= 1922.53A, IL3= 1877.29A, Frequency= 50.11Hz & tripping relay 86A, 86B operated.	Transient fault	-	Charged with verbal instruction from BPSO.
11	Deothang Feeder	132kV	Tripping	11-10-2022	04:41 hrs	11-10-2022	04:48 hrs	0	-41.96	REL670, Distance Relay	***Directional -O/C & E/F Relay:*** Tripped on E/F & O/C . IL1= 41.41A, IL2= 1146.16A, IL3= 1146.96A, Frequency= 50.11Hz & tripping relay 86A, 86B operated.	Transient fault	-	Charged with verbal instruction from BPSO.
12	Deothang Feeder	132kV	Tripping	11-10-2022	04:48 hrs	11-10-2022	05:07 hrs	0	-41.96	REL670, Distance Relay	***Directional -O/C & E/F Relay:*** Tripped on E/F & O/C and L/F . IL1= 150.31A, IL2= 1359.16A, IL3= 138.96A, Frequency= 50.11Hz & tripping relay 86A, 86B operated.	Transient fault	-	Charged with verbal instruction from BPSO.
13	15MVA Transformer	132/33kV	Tripping	11-10-2022	08:54 hrs	11-10-2022	08:56 hrs	0	0.32	RET650, transformer differential relay	RET650 Relay Indication: Tripped on O/C & E/F. IL1= 1005.33A, IL2= 14.19A, IL3= 1008.27A, Frequency= 50.12Hz & tripping relay 86A, 86B operated.		-	At 8:30hrs charged transformer but didnot hold and tripped on same fault. Test charged again at 8:42hrs, HV side stood but tripped again while charging LV. At 8:52hrs Airtels fdr has tripped. Charged Xmer at 8:56hrs with code, 1570. 33kV Airtels feqr under shutdown for line maintenance.
14	Deothang Feeder	132kV	Tripping	11-10-2022	09:11 hrs	11-10-2022	09:17 hrs	0	1.51	REL670, Distance Relay	RET650 Relay Indication: Tripped on O/C & E/F. IL1= 150.34A, IL2= 1359.66A, IL3= 138.62A, Frequency= 50.12Hz & tripping relay 86A, 86B operated.	Transient fault	-	BPSO Closing code: 1505
15	15MVA Transformer	132/33kV	Tripping	11-10-2022	09:15 hrs	11-10-2022	09:20 hrs	0	0.03	RET650, transformer differential relay	RET650 Relay Indication: Tripped on O/C&E/F. IL1= 0.71.88A, IL2= 1.05A, IL3= 0.76A, Frequency= 50.08Hz & tripping relay 86A, 86B operated.	-	-	
16	15MVA Transformer	132/33kV	Tripping	12-10-2022	22:13 hrs	12-10-2022	22:16 hrs	0	0.15	RET650, transformer differential relay	Tripped on O/C & E/F. Trip values not displayed. Frequency= 50.03Hz & tripping relay REC670 Indication: 86A/B operated, R, Y & B trip.	-	-	
17	15MVA Transformer	132/33kV	Tripping	13-10-2022	10:48 hrs	13-10-2022	10:50 hrs	0	0.28	RET650, transformer differential relay	RET650 Relay Indication: Tripped on O/C&E/F. IL1= 18.55A, IL2= 18.42A, IL3= 17.52A, Frequency= 50.05Hz & tripping relay 86A, 86B operated.	Transient fault	-	
18	15MVA Transformer	132/33kV	Tripping	14-10-2022	14:11 hrs	14-10-2022	14:22 hrs	0	0.35	RET650, transformer differential relay	RET650 Relay Indication: Tripped on O/C/E/F. IL1= 33.97A, IL2= 23.70A, IL3= 49.58A, Frequency= 50.06Hz & tripping relay 86A, 86B operated.	Transient fault	-	Charging code: 1525
19	15MVA Transformer	132/33kV	Tripping	21-10-2022	15:08 hrs	21-10-2022	15:57 hrs	0	0.29	RET650, transformer differential relay	RET650 Relay Indication: Tripped on O/C &E/F. IL1= 28.46A, IL2= 24.81A, IL3= 45.36A, Frequency= 50.05Hz & tripping relay 86A, 86B operated.	-	-	The X'mer was test charged at 15:49hrs but did not hold. It was charged at 15:57hrs with closing code: 1548.
20	15MVA Transformer	132/33kV	Tripping	22-10-2022	15:49 hrs	22-10-2022	15:52 hrs	0	0.03	RET650, transformer differential relay	RET650 Relay Indication: Tripped on O/C&E/F. IL1= 18.89A, IL2= 25.60A, IL3= 42.65A, Frequency= 50.05Hz & tripping relay 86A, 86B operated.	Transient fault	-	Charged with verbal instruction from BPSO.
21	15MVA Transformer	132/33kV	Tripping	24-10-2022	12:19 hrs	24-10-2022	12:21 hrs	0	0.17	RET650, transformer differential relay	RET650 Relay Indication: Tripped on O/C&E/F. IL1= 15.35A, IL2= 17.68A, IL3= 17.06A.Dif protn operated, R, Y &B trip and 86A, 86B operated.	-	-	Charged with verbal instruction from BPSO.
22	15MVA Transformer	132/33kV	Tripping	24-10-2022	15:51 hrs	24-10-2022	15:53 hrs	0	0.34	RET650, transformer differential relay	RET650 Relay Indication: Tripped on O/C &E/F. IL1= 14.75A, IL2= 17.11A, IL3= 19.56A.Dif protn operated, R, Y &B trip and 86A, 86B operated.	-	-	Charged with verbal instruction from BPSO.
23	15MVA Transformer	132/33kV	Tripping	24-10-2022	16:00 hrs	24-10-2022	16:09 hrs	0	0	RET650, transformer differential relay	RET650 Relay Indication: Tripped on O/C &E/F. IL1= 15.782A, IL2= 15.18A, IL3= 18.19A.Dif protn operated, R, Y &B trip and 86A, 86B operated.	-	-	Test charged at 16:03hrs but did not hold and tripped on same fault. Charged at 16:09hrs with code, 1566.
24	15MVA Transformer	132/33kV	Tripping	24-10-2022	16:20 hrs	24-10-2022	16:28 hrs	0	0	RET650, transformer differential relay	RET650 Relay Indication: Tripped on O/C &E/F. IL1= 15.41A, IL2= 16.14A, IL3= 16.59A.Dif protn operated, R, Y &B trip and 86A, 86B operated.	-	-	BPSO Closing code: 1568
25	15MVA Transformer	132/33kV	Tripping	24-10-2022	16:37 hrs	24-10-2022	16:46 hrs	0	0	RET650, transformer differential relay	RET650 Relay Indication: Tripped on O/C &E/F. IL1= 14.50A, IL2= 16.19A, IL3= 16.36A.Dif protn operated, R, Y &B trip and 86A, 86B operated.	-	-	BPSO Closing code: 1569
26	15MVA Transformer	132/33kV	Tripping	24-10-2022	16:55 hrs	24-10-2022	17:04 hrs	0	0	RET650, transformer differential relay	RET650 Relay Indication: Tripped on O/C&E/F. IL1= 22.23A, IL2= 39.79A, IL3= 60.71A.Dif protn operated, R, Y &B trip and 86A, 86B operated.	-	-	Charged with verbal instruction from BPSO.

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	Reasons of Fault	Relay Operations	Fault Location(KM)	Type of outages	No. of Customers Affected	Remarks
1. 400/220/132/33kV Jigmeling Substation														
i) 132kV Above														
1	09.10.2022	09.12 hrs	09.10.2022	09:12 hrs	0	196.51	400kV Alipurduar Line 1	Alipurduar SS	Fault loop:Yph-Ground	Main 1 and Main 2 optd. Fault loop:Yph- Ground trip. Zone 1 optd.	Main 1 Fault current IA = 2.27kA. Fault Distance 115.7km(21.1) and 114.7km(21.2)	Transient		
2	24.10.2022	22:55 hrs	24.10.2022	23:04 hrs	0	-145.44	400kV MHPA LINE 1	MHPA	Fault loop:Bph-Ground	Main 1 and Main 2. RYBph pickup, Zone 1 optd, Fault loop: Bph-Ground trip	Main 1 Fault current IB = 5.64kA. Fault Distance 22.3km, Main 2 Fault current IB=5.64kA and Fault Distance 22.2km			
3	20.10.2022	09:41 hrs	20.10.2022	09:47 hrs	0	10.230	220kV Tsirang	Dhajey SS	Relay General trip	Main-2 Relay general tripp				**Line tripped while changing under voltage relay settings**
4	26.10.2022	10.08hrs	26.10.2022	10:15hrs	0	-15.06	80MVA ICT 2	Jigmeling ss	SEF(LV)	67/67N(LV)				
5	12.10.2022	01:40hrs	12.10.2022	1:45hrs	0	11.330	Gelephu Feeder	Gelephu substation	Phase Loop	main 1 - R,Y & B phase trip Z2 trip main 2 - R,Y & B phase trip Z2 trip	33.2km	transient		
2. 220/66/33kV Dhajay Substation														
i) 66kV and above														
1	26.10.2022	10:08hrs	26.10.2022	10:26hrs	0	67.99	220kv Dagachu feeder	Dhajay Substation	over voltage	Distance relay main-2(21.2)- Ia=0.12A, Ib=0.03A, Ic=0.09A, In=0.02A, Va=124.58kV, Vb=145.99kV, Vc=105kV	Substation	Tripped		Feeder restored after got a confirmation from BPSO
3. 132/66/33/11kV Gelephu Substation														
i) 66kV and above														
1	12.10.2022	01:40 hrs	12.10.2022	02:28 hrs		28.8	132 kV Salakati	132 kV Salakati	Line fault	Tripped on 3 phs ,zone 4, distance -2.671 km,fault current value: IA=1.811 ka,IB=2.035 ka,Ic=1.985 ka	Gelephu s/s	Teporary		Charging Code; NLDC BTN=1513, NLDC IND=1105 & NERLDC=8414. At the same time 132kv Gel-Jig line also tripped from Jigmeling end. (heavy lighting & rainfall)
4	19.10.2022	20:55hrs	19.10.2022	21:00hrs		-20	132kV Gel-Jel	132kV Gel-Jel	Line fault	shutdown	Jigmeling s/s			To change R-ph CT polarity at Jigmeling SS.
6	21.10.2022	17:38hrs	21.10.2022	17:47hrs		-16	132kV Gel-Jel	132kV Gel-Jel	Line fault	shutdown	Jigmeling s/s			Emergency s/d taken by Jigmeling ss to check phase sequence.
4. 132/33kV Tintibi Substation														
i) 66kV & Above														
1	08.10.2022	06:25hrs	08.10.2022	06:53hrs	0	14.4	kV Tingtibi-nangkhar	32kV Tingtibi-nangkhar F	Temporary Fault	Distance Relay:Start Phase:CN,Trip Phase:ABC,Fault zone-1 trip,Fault location85.46 KM	85.46	Temporary	Nil	
2	12.10.2022	01:39hrs	2.10.2022	02:00hrs	0	-10.44	kV Tingtibi-Jigmeling	2kV Tingtibi- Jigmeling	Temporary Fault	Distance Relay:Start Phase:ABC,Trip Phase:ABC,Fault zone-1 trip,Fault location52.57kM	52.57	Temporary	Nil	

November 2022

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Nganglam Substation
Month:	Nov-22

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(ri)	No. of Customers Interrupted (Ni)		
33kV													
1	132/11kV, 5MVA Transformer 1	11kV	Fault	21-11-2022	11:34:00	21-11-2022	11:37:00	00:03:00	3	0.05	P&C Relay OC & EF relay	Tripped on Earth Fault	Fault

Division:	SMD-DEOTHANG
Substation:	132/33/11kV Nganglam Substation
Month:	Nov-22

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(ri)	No. of Customers Interrupted (Ni)		Type/Cause of Fault	Reason for Shutdown	Remarks
33kV															
1	132/11kV, 5MVA Transformer 1	11kV	Fault	21-11-2022	11:34:00	21-11-2022	11:37:00	00:03:00	3	0.05	P&C Relay OC & EF relay	Tripped on Earth Fault	Fault		

Division:	SMD DEOTHANG
Substation:	132/33kV Motanga Substation
Month:	Nov-22

03/BPC/SMD/MSS/2022/272

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 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	Test charged was done and line stand
132kV Feeders															
1	15MVA Transformer	132/33kV	Tripping	02-11-2022	19:33 hrs	02-11-2022	19:36 hrs	0	3	2.14	RET650, transformer differential relay	Tripping relay 86A & SEF operated. IL1= 0.014A/101.92deg, IL2= 0.012A/73.90deg, IL3= 0.01A/84.95deg, IN= 0.04A/94.00deg	Transient fault	-	Charged feeder with the verbal instruction from BPSO
2	15MVA Transformer	132/33kV	Tripping	06-11-2022	15:44 hrs	06-11-2022	15:47 hrs	0	3	2.08	-	Fault values not recorded by the relay	-	-	Charged after receiving verbal instruction from BPSO
3	15MVA Transformer	132/33kV	Tripping	12-11-2022	09:07 hrs	12-11-2022	09:13 hrs	0	6	0.23	-	Fault values not recorded by the relay	-	-	BPSO Charging code: 3805

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	Reasons of Fault	Relay Operations	Fault Location(KM)	Type of outages	Remarks
1. 400/220/132/33kV Jigmeling Substation													
i) 132kV Above													
1	25.11.2022	1:38 hrs	25.11.2022	1:38 hrs	0	-130.9	400kV MHEP Line - 3	Jigmeling and Alipurduar		Main 1(21.1): Y & B pick up Main 2(21.2): Y and B phase pick up	Main 1: Fault current: 5.1kA, Fault distance: 32.9km Main 2: Fault current: 5.11kA, Fault distance: 25.2km		**Line auto reclosed**
2	29.11.2022	01:22 hrs	29.11.2022	20:06 hrs	18	0.070	132/33kV 15MVA Transformer 1	Jigmelingpa	Tripped on 87T, differential relay	87T, differential relay, REF and SEF			
2. 220/66/33kV Dhajay Substation													
i) 66kV and above													
1	02.11.2022	4:04hrs	02.11.2022	4:53:27hrs	0	45.9	220kv Tsirang-Jigmeling	Dhajay Subsation	over voltage	Distance relay main-2(21.2)- Ia=0.09A, Ib=0.09A, Ic=0.06A, In=0.1A, Va=132.24kV, Vb=132.87kV, Vc=132.68kV	Substation	Tripped	Feeder restored after got a confirmation from BPSO.
2	10.11.2022	17:08hrs	10.11.2022	17:14hrs	0	4.24	220kv Tsirang-Jigmeling	Dhajay Subsation	over voltage	Distance relay main-2(21.2)- Ia=0.07A, Ib=0.09A, Ic=0.19A, In=0.17A, Va=141kV, Vb=145.93kV, Vc=132kV	Substation	Tripped	Feeder restored after got a confirmation from BPSO.

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)		Protecton 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	0.516	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 Afftected	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
(B)66/33/11 kV Phuntsholing Substation													
1	06.01.2022	09:24	06.01.2022	11:16	1	0.66	5MVA TRF 66/11kV	5MVA TRF 66/11kV	BUCH Trip	OLTC BUCH Trip, Tripping relay 86	Substation	Tripped on Fault	At 09:19hrs 5MVA transformer (66/11kV) got tripped on OLTC BUCH. Couldn't reset the relay and informed to Rinchen Zangmo, Sr.Engineer regarding above fault. Issued shutdown with work permit no.339 for carrying out physical inspection. Released gas and cleaned contact parts. At 11:16hrs normalised 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**
	(D) 66/33/11kV Lobeysa Substation												
	66kV LSA - Basochu feeder												
1	28.01.2022	12:32hrs	28.01.2022	12:49hrs	0	-21.580	66kV LSA - Basochu feeder			86 relay operated			66kV LSA - Basochu feeder got tripped at 12:32hrs and charged the line as per BPSO at 12:49hrs and breaker towards hand tripped as per BPSO at 12:48hrs.
2	28.01.2022	13:03hrs	28.01.2022	13:11hrs	0	-6.840	66kV LSA - Basochu feeder			NA			66kV LSA - Basochu feeder got tripped at 13:03hrs without any relay & breaker operation at our end and supply resumed at 13:11hrs from Basochu and supply extended to Daochula at 13:14hrs as per BPSO.
	66kV LSA - Dochula feeder												
1	28.01.2022	12:48hrs	28.01.2022	13:14hrs	0	15.190	66kV LSA - Dochula feeder			NA			66kV LSA - Dochula feeder hand tripped as per BPSO at 12:48hrs and charged the feeder at 13:14hrs.
	(G) 66/33/11kV Dechencholing substation												
1	26.01.2022	14:40hrs	26.01.2022	14:44Hrs	0	-33.98	66KV Semtokha IC	whole s/s fdr.	Supply failed from source.				
2	28.01.2022	12:36hrs	28.01.2022	12:50Hrs	0	-33.54	-do-	whole s/s fdr.	Supply failed from source.				
3	29.01.2022	07:58hrs	29.01.2022	08:18hrs	0	3.642	66KV Damji line	Damji line	Transcend fault	86A,86B, Dist trip, 3phase, Zone-I & Sotf/Tor trip.	Distance not shown	tripped	
	(H) 66/11kV Haa Substation												
1	27.01.2022	9:20hrs					66/11kV 5MVA transformer - II	66/11kV 5MVA transformer - II	Oil lekage from the 11kV terminal box of 'Y' phase.	Bhuloz relay	Haa ss	Bhuloz 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 same was informed to maintenance head SMD, Semtokha for necessary action, due to lockdown the work couldn't be proceeded further, till then the supply was fed from 5MVA transformer - I.	Source fail from Chhukha power house, normalised the supply from the source.
	(I) 220kV Substation Semtokha												
1	28.01.2022	12:34hrs	28.01.2022	12:49hrs		-63.150	220kV Sem-CHP	Semtokha Substation	CB tripped at CHP end while doing test charge			Trasient	
2	28.01.2022	12:32hrs	28.01.2022	14:16hrs	25	-63.58	220kV Sem-BHP	220kV SEM-BHP Line	Fault Loop= L1-N	Main-1&2 Trip, fault loop-L1-N (Ia=2.39KA, Ib=222.5A, Ic=130.1A)	Distance=5.2KM	Permanent	
3	25.01.2022	12:08hrs	25.01.2022	12:12hrs		34.69	66kV Sem-Ding Line	66kV Sem-Ding Line	Broken Conductor	Distance Prtn. Optd, BRC Tr	-	Trasient	
4	26.01.2022	14:39hrs	26.01.2022	14:44hrs		34.69	66kV Sem-Ding Line	66kV Sem-Ding Line	Broken Conductor	Distance Prtn. Optd, BRC Tr	-	Trasient	
	(K) 66/33kV Changidaphu Substation												
1	28.01.2022	12:34hrs	28.01.2022	13:03hrs		-3.95	66kV Changidaphu - Olakhaline	66kV Changidaphu - Olakhaline	Grid failed	Dist. Protn. Optd, Zone-1, Rph trip		Trasient	
	(L) 66/33kV Damji Substation												
1	25.01.2022	1207 hrs	25.01.2022	1213 hrs	0	-3.24	66 kV Incoming Line	Whole Substation	Trip	NA			Line trip from Semtokha Substation
2	26.01.2022	1440 hrs	26.01.2022	1445 hrs	0	-1.19	66 kV Incoming Line	Whole Substation	Trip	NA			Line trip from Semtokha Substation
3	29.01.2022	0753 hrs	29.01.2022	0819 hrs	0	-3.01	66 kV Incoming Line	Whole Substation	Trip	NA			Line trip from Dechencholing Substation
	(M) 66/11kV Dochula Substation												
1	28/1/2022	12.36	28/1/2022	12.53	0		86 relay	Source Fail from Chukha & Basochu	Line fault between semtokha to Rurichu	Temporary fault	While charging the Rurichu line from semtokha Chukha got tripped due to the line fault in between Semtokha to Rurichu.		
2	28/1/2022	12.36	28/1/2022	12.58	0		86 relay	Source Fail from Chukha & Basochu	Line fault between semtokha to Rurichu	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	01.02.2022	16:59	01.02.2022	17:05	0	48	220kV Chukha Feeder	Malbase Substation	overcurrent on R phase.	Distance Zone 1, AR operated.	9.4929 km	Overcurrent Outage	IL1=5.566kA,IL2=3.11A,IL3=386.9A
2	01.02.2022	16:59	01.02.2022	17:12	0	22	50MVA Transformer III	Malbase Substation		Differential Start, OLTC Buccholz Trip, Differential Trip.	-	-	IL1=89.97A<126.94 deg, IL2=79.88A<-178.9 deg ,IL3=130.9A< 129.26 deg.
3	10.02.2022	15:37	10.02.2022	15:55	0	27	66kV Pasakha Feeder I	Industrial Site		IEF-SON_Trip,86 Operated,General Trip.	-	-	IL1=228.08A<57.66 deg, IL2=209.67A<-147.73deg ,IL3=148.03A< -67.51deg.
4	10.02.2022	15:37	10.02.2022	15:55	0	29	66kV Pasakha Feeder IV	Industrial Site		IEF-SON_Trip,86 Operated,General Trip.	-	-	IL1=609.62A<-80.46 deg, IL2=552.45A<-115.14deg ,IL3=1719.66A< 69.45deg.
5	10.02.2022	15:37	10.02.2022	15:55	0	27	66kV Pasakha Feeder II	Industrial Site		IEF-SON_Trip,86 Operated,General Trip.	-	-	IL1=0.34A<139.27 deg, IL2=702.13A<133.46deg ,IL3=2369.77< -79.96deg.
6	10.02.2022	15:37	10.02.2022	15:55	0	-	66kV Bus Coupler	Malbase Substation		IEF-SON_Trip,86 Operated,General Trip.	-	-	IL1=552.12A<116.54 deg, IL2=20.01A<116.26deg ,IL3=332.77<84.69deg, Neutral current=1054.78<109.17deg.
7	20.02.2022	23:13	20.02.2022	23:24	0	28	220 kV Chukha feeder	Malbase Substation		AR Lockout Shot, Zone 1 Trip.	9.281 km	-	R phase=5.023kA,Y phase=5.039kA, Y phase=4.917kA.
(B)220/66/11 kV Singhigoan Substation													
1	10.02.2022	15:38	10.02.2022	15:48	0	10	66kV Bhutan Concast Feeder	Singhigaon Substation	Overcurret on B phase	O/C Trip, DIR Time-trip,IE>>DIR trip,I >> DIR Trip.	Druk wang Factory	Overcurrent Outage	IL1=0.35kA,IL2=0.38kA,IL3=5.13kA
(B)66/33/11 kV Phuntsholing Substation													
1	01.02.2022	16:58	01.02.2022	17:11	0	3.47	66kV Chukha feeder	66kV Chukha feeder	Overcurrent	Ia-373.7A, Ib-1.041kA, Ic-982.1A, VAB-11.04kV, VBC-13.85kV, VCA-10.39kV, Inm- 409.3A, Ind-409.6A, VAN-5.177kV, VBN-7.872kV, VCN-7.222kV, 86 & 186	Substation	Tripped on fault	66kV Chukha-Pling feeder got tripped at both end (i.e Pling & Chukha end). At 17:11hrs normalised the feeder after getting clearance from BPSO.
2	02.02.2022	08:04	02.02.2022	08:32	0	0.09	66kV Chukha feeder	66kV Chukha feeder	Overcurrent	Ia-37.19A, Ib-775.5A, Ic-756.6A, VAB-50.57kV, VBC-21.83kV, VCA-55.87kV, Inm- 6.114A, Ind-6.078A, VAN-38.46kV, VBN-25.01kV, VCN-17.64kV, 86 & 186	Substation	Tripped on fault	66kV Chukha-Pling feeder got tripped at both end (i.e Pling & Chukha end). At 08:22hrs test charge the feeder after getting clearance from BPSO with charging code 1093 but got tripped on distance relay. Informed to BPSO and at 08:32hrs normalised the feeder after opening 66kV Pling- Gedu section line isolator at Gedu end.
3	05.02.2022	05:26	05.02.2022	05:32	0	-3.63	66kV Chukha feeder	66kV Chukha feeder	Overcurrent	Ia-35.18A, Ib-976.9A, Ic-995.1A, VAB-60.03kV, VBC-13.79kV, VCA-58.43kV, Inm- 10.96A, Ind-10.85A, VAN-39.56kV, VBN-24.30kV, VCN-19.88kV, 86 & 186	Substation	Tripped on fault	66kV Chukha-Pling feeder got tripped at both end (i.e Pling & Chukha end). At 05:26hrs normalised the feeder after getting clearance from BPSO.
4	20.02.2022	23:13	20.02.2022	23:25	0	-2.30	66kV Chukha feeder	66kV Chukha feeder	Distance relay	General Trip, 186 & 86	Substation	Tripped on fault	66kV Chukha-Pling feeder got tripped at both end (i.e Pling & Chukha end, weather condition at Chukha heavy lighting and rain). At 23:25hrs normalised the feeder after getting clearance from BPSO.
5	21.02.2022	01:54	21.02.2022	02:22	0	-2.00	66kV Chukha feeder	66kV Chukha feeder	Distance relay	General Trip, 186 & 86	Substation	Tripped on fault	66kV Chukha-Pling feeder got tripped at both end (i.e Pling & Chukha end, weather condition at Chukha heavy lighting and rain). At 02:10hrs test charged with charging code 1230 from BPSO but got tripped on same fault. At 02:22hrs as per instruction from BPSO normalised the feeder after opening line isolator of 66kV Chukha-Gedu section from Gedu end.
6	21.02.2022	15:28	21.02.2022	15:40	0	-4.98	66kV Pling-Gomtu feeder	66kV Pling-Gomtu feeder			Dhamdhum substaion		At 15:29hrs 66kV Gomtu-Pling feeder got tripped from Gomtu end (i.e from Dhamdhum substation) and causing black out at Phuentsholing. At 15:36hrs normalised 66kV Pling-Malbase feeder with closing code 1235 from BPSO. Weather condition was raining with lightning.
7	21.02.2022	15:36				idle	66kV Pling-Malbase feeder						At 15:29hrs 66kV Gomtu-Pling feeder got tripped from Gomtu end (i.e from Dhamdhum substation) and causing black out at Phuentsholing. At 15:36hrs normalised 66kV Pling-Malbase feeder with closing code 1235 from BPSO. Weather condition was raining with lightning.
8	25.02.2022	16:17	25.02.2022	16:33	0	-5.85	66kV Chukha-Pling feeder	66kV Chukha feeder	Distance relay	General Trip, 186 & 86	Substation	Tripped on fault	66kV Chukha-Pling feeder got tripped at both end (i.e Pling & Chukha end and 66kV Gomtu feeder from end causing black out at Phuentsholing. At 16:20hrs charged 66kV Malbase feeder with closing code 1255 from BPSO. At 16:33hrs normalised 66kV Chukha-Pling feeder after getting clearance from BPSO. At 16:40hrs normalised 66kV Gomtu feeder with closing code 1256 from BPSO.
9	25.02.2022	16:17	25.02.2022	16:40	0	-2.75	66kV Pling-Gomtu feeder	66kV Pling-Gomtu feeder	Distance relay	General Trip, timo-41sec, fault imp- 6.68, fault angle-131deg, fault I-4.09A, fault location-45.7 and 186 & 86	Substation	Tripped on fault	
10			25.02.2022	16:20	16	idle	66kV Pling-Malbase feeder						Both 66kV feeder got tripped causing black out at Phuentsholing. At 16:20hrs charged 66kV Pling-Malbase feeder with closing code 1256 from BPSO.

(D) 66/33/11 kV Gedu Substation													
1	01.02.2022	16:58	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	5:32	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	16:34	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	-8.42	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	Trainsent 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	Trainsent 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	8.1	66kV Gomtu fdr.	Gomtu	Trainsent Fault	REL670:General trip,Zone 1 trip R phase and 86 relay trip.	N/A	_	Fault value:R phase fault mag.:3408.74Amp 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 affacted by the fault	Reasons of fault	Relay operations	Exact location of fault [Line segment/ Substation]	Type of outages	Remarks
	(A) 66kV Chumdu switching station												
1	04.02.2022	2227hrs	05.02.2022	1435hrs	10hrs	2.92WM	66kV Pangbasa feeder	Pangbasa substation	due to heavy snow fall	G/trip, Y&B ph, CB open.	66kV transmission line	Trip	
2	05.02.2022	0013hrs	05.02.2022	0028hrs		6.22MW	66kV Jemina feeder	Fed from 66kV Chukha feerder		G/trip, Y&B ph, CB open.			
3		0114hrs		0121hrs		(-)3.99MW							
4		0212hrs		0222hrs		0.25MW							
5		0626hrs		1422hrs	7hrs	1.26MW							
6		0025hrs		0056hrs		3.02MW	66kV Paro feeder	Paro substation		G/trip, Y&B ph, CB open.			
7		0109hrs		1430hrs	13hrs	4.03MW							
8		2456hrs		0102hrs		(-)7.95MW	66kV Chukha feeder	Paro, Pangbasa, Jemina		G/trip, Y&B ph, CB open. Dist prtn optd.			
9		0203hrs		0410hrs	2hrs	(-)0.15MW							
10		0734hrs	06.02.2022	1511hrs	41hrs	(-)1.2MW		Fed from 66kV Jemina feerder					
11	08.02.2022	1106hrs	08.02.2022	1243hrs	1hr	0.3MW	66kV Chukha Feeder	Fed from 66kV Jemina feerder	For jumpering out at Wtsa T-Off	CB open, Line& Bus isolator open, E/switch closed			
12	09.02.2022	1643hrs	09.02.2022	1739hrs		0.45MW			For rejumpering out at Wtsa T-Off				
13	14.02.2022	0205hrs	14.02.2022	0211hrs		3.88MW	66kV Paro feeder	Paro substation	Transcient fault	CB open, OC	Chumdo end	trip	
14		0650hrs		0655hrs		2.58MW							
15		0705hrs		0721hrs		7.64MW							
16	20.02.2022	2022hrs	20.02.2022	2028hrs		(-)15.75MW	66kV Chukha feeder	Fed from 66kV Jemina feerder	Trip	CB open,Dist prtn optd, 3ph trip			
17		2100hrs	21.02.2022	1226hrs	15hrs								
18		2131hrs	20.02.2022	2141hrs		3.45MW	66kV Pangbasa feeder	Pangbasa substation	Trip	G/trip, Dist prtn optd, 3ph	Chumdo end	Trip	
19	21.02.2022	0846hrs	21.02.2022	0939hrs		(-)14.67MW	66kV Jemina feeder	Paro,Pangbasa Watsa	Trip	No operation at chumdo end.	Changdaphu end	trip	

	(B) 66/33kV Watsa Substation												
1	02-05-2022	00.58hrs	02-05-2022	01.02hrs		450MW	66KV IC	Fdr. I and II		Dist. Realay 21.6km, Gen. zone 1 at chukha end	66KV IC	Tripped	
2	02-05-2022	1.33hrs	02-05-2022	1.38hrs		450MW	66KV IC	Fdr. I and II		Dist. Realay 21.8km, Gen. zone 1 at chukha end	66KV IC	Tripped	
3	02-05-2022	1.51hrs	02-05-2022	1.56hrs		450MW	66KV IC	Fdr. I and II		Dist. Realay 21.8km, Gen. zone 1 at chukha end	66KV IC	Tripped	
4	02-05-2022	2.08hrs	02-05-2022	3.02hrs		450MW	66KV IC	Fdr. I and II		Dist. Realay 21.8km, Gen. zone 1 at chukha end	66KV IC	Tripped	
5	02-05-2022	3.02hrs	02-05-2022	5.10hrs	2hrs	450MW	66KV IC	Fdr. I and II		Dist. Realay 21.8km, Gen. zone 1 at chukha end	66KV IC	Tripped	
6	02-05-2022	9.3 4hrs	02-06-2022	15.11hrs	19hrs	450MW	66KV IC	Fdr. I and II		Dist. Realay 21.8km, Gen. zone 1 at chukha end	66KV IC	Tripped	66KV track feeded from chumdo and after opening jumpers towards chukha by TMD chukha
9	16/2/2022	20.50hrs	16/2/2022	20.56hrs		660MW	66KV SF6 breaker	Fdr. I and II	OC,OCH, EF and EFH	OC,OCH, EF and EFH on B phase	Fdr. I Wmsakha	Tripped	Test charge but line couldn't hold and breaker charged after opening Wmsakha isolator
10	20/2/2022	20.20hrs	20/2/2022	20.28hrs		190MW	66KV IC	Fdr. I and II		Dist. Realay 14.9km, zone 1 at chukha end	66KV IC	Tripped	
11	20/2/2022	21.00hrs	21/2/2022	12.26hrs	15hrs	190MW	66KV IC	Fdr. I and II	Conductor got twisted at chapcha near gruff canyon	Dist. Realay 14.9km, zone 1 at chukha end	66KV IC	Tripped	Conductor got twisted with each other at chapcha near gruff. Line charged after clearing fault by TMD Tshesabbe
	(C) 66/33kV Olakha Substation												
1	05-02-2022	01:15	05-02-2022	01:19		2.92	66kV Olakha - Changidaphu line	Olakha Substation	Dist Protn Relay - 21 Optd	DISTANCE PROTN RELAY-21 Optd Indication 1,2 3,12 & 13 . 1 General trip. 2 Distance Optd. 3 Zone 2 Optd. 12 LBB Optd.13 U/V Optd. & Trip relay- 86 & distance of fault as 18.8 km (Zone 2)	Fault on 66kV Olakha - Changidaphu line	Transient Fault	Reset all the operated relay & indication Charged the 66kV line as per BPSO instruction given and hold normal
2	04.02.2022	02:28	04.02.2022	02:38		0.83	66kV Olakha - Changidaphu line	Olakha Substation	Dist Protn Relay - 21 Optd	DISTANCE PROTN RELAY-21 Optd Indication 1,2 3,12 & 13 . 1 General trip. 2 Distance Optd. 3 Zone 1 Optd. 12 LBB Optd.13 U/V Optd. & Trip relay- 86 & distance of fault as 2.7 km (Zone 1)	Fault on 66kV Olakha - Changidaphu line	Transient Fault	Reset all the operated relay & indication & consult with BPSO and charged the line & hold normal
3	05.02.2022	01:09	05.02.2022	01:15		1.3	66kV Olakha - Changidaphu line	Olakha Substation	Dist Protn Relay - 21 Optd	DISTANCE PROTN RELAY-21 Optd Indication 1,2 3,12 & 13 . 1 General trip. 2 Distance Optd. 3 Zone 1 Optd. 12 LBB Optd.13 U/V Optd. & Trip relay- 86 & distance of fault at 1.6 km (Zone 1)	Fault on 66kV Olakha - Changidaphu line	Transient Fault	Reset all the operated relay & indication & consult with BPSO and charged the line & hold normal
4	05-02-2022	01:27	05-02-2022	01:32		1.4	66kV Olakha - Changidaphu line	Olakha Substation	Dist Protn Relay - 21 Optd	DISTANCE PROTN RELAY-21 Optd Indication 1,2 3,12 & 13 . 1 General trip. 2 Distance Optd. 3 Zone 1 Optd. 12 LBB Optd.13 U/V Optd. & Trip relay- 86 & distance of fault at 1.8 km (Zone 1)	Fault on 66kV Olakha - Changidaphu line	Transient Fault	Reset all the operated relay & indication & consult with BPSO and charged the line & hold normal
5	05-02-2022	04:08	05-02-2022	04:14		1.51	66kV Olakha - Changidaphu line	Olakha Substation	Dist Protn Relay - 21 Optd	DISTANCE PROTN RELAY-21 Optd Indication 1,2 3,12 & 13 . 1 General trip. 2 Distance Optd. 3 Zone 1 Optd. 12 LBB Optd.13 U/V Optd. & Trip relay- 86 & distance of fault at 2.2 km (Zone 1)	Fault on 66kV Olakha - Changidaphu line	Transient Fault	Reset all the operated relay & indication & consult with BPSO and charged the line & hold normal
6	05-02-2022	07:53	05-02-2022	07:52	1	0.7	66kV Olakha - Changidaphu line	Olakha Substation	Dist Protn Relay - 21 Optd	DISTANCE PROTN RELAY-21 Optd Indication 1,2 3,12 & 13 . 1 General trip. 2 Distance Optd. 3 Zone 1 Optd. 12 LBB Optd.13 U/V Optd. & Trip relay- 86 & distance of fault as 2.7 km (Zone 1)	Fault on 66kV Olakha - Changidaphu line		As per the BPSO instruction given 66kV Olakha - Changidaphu breaker kept open due to continues tripping. Again as per BPSO instruction 66kV Olakha - Changidaphu breaker closed at 07.52 Hrs & hold normal
7	05-02-2022	08.49	05-02-2022	10.53	2	0.0	66kV Olakha - Changidaphu line	Olakha Substation	Dist Protn Relay - 21 Optd.	DISTANCE PROTN RELAY-21 Optd Indication 1,2 3,12 & 13 . 1 General trip. 2 Distance Optd. 3 - Zone 1 Optd. 12 LBB Optd.13 U/V Optd. & Trip relay- 86 & distance of fault as 1.4 km (Zone 1)	Fault on 66kV Olakha - Changidaphu line		As per the BPSO instruction given 66kV Olakha - Changidaphu breaker closed at 8.50 hrs but it couldn't stand as Distance relays shows is 5.2 km on zone 1. Thereby 66kV breaker of Changidaphu was kept open as per BPSO instruction. After information 66kV Olakha - Changidaphu breaker closed /charged at 10.53 Hrs as per BPSO instruction and hold normal
9	05-02-2022	14:45	05-02-2022	14.50		0.0	66kV Olakha - Changidaphu line	Olakha Substation	Earth Fault and Over Current Operated	DISTANCE PROTN RELAY- 21 Optd Indication 1, 12 & 13. General Trip 13 LDB operated 13 U/V Optd. & Trip relay- 86)	Line Segments	Due to Continuous snow Fall	Reset all the operated relay & indication and after consult with BPSO and charged the line & hold normal.
10	05-02-2022	15:16	05-02-2022	15:16		4.1	66kV Olakha - Changidaphu line	Olakha Substation	Earth Fault and Over Current Operated	DISTANCE PROTN RELAY-21 Optd Indication 1, 12 & 13. General Trip 13 LDB operated 13 U/V Optd. & Trip relay- 86)	Line Segments	Due to Continuous Snow Fall	Reset all the operated relay & indication and after consult with BPSO and charged the line & hold normal.
11	04.02.2022	13:26	04.02.2022	13:20		13.8	20MVA Transformer - 1	All the 33kV Outgoing feeders was effected	Directional Over Current and Earth fault along with 86 relay operated	Directional Over Current and Earth fault along with 86 relay operated. Indication 1,2 & 3. General Tripped 4. Over current and Earth fault operated	Line Segments	Temporary fault due to heavy snowfall	Reset the relays and test Charged the Transformer and hold normal
12	05.02.2022	13:26	05.02.2022	13:20		13.7	20MVA Transformer - II	All the 33kV Outgoing feeders was effected	Directional Over Current and Earth fault along with Rbrelay operated	Directional Over Current and Earth fault along with Rbrelay operated. Indication 1,& 3. General Tripped 4. Over current and Earth fault operated	Line Segments	Temporary fault due to heavy snowfall	Reset the relays and test Charged the Transformer and hold normal
14	05.02.2022	13:08	05.02.2022	13:09		14.7	20MVA Transformer - 1	The 33kV outgoing was not effected as the feeders was fed from 20MVA Transformer II	Directional Over Current and Earth fault along with 86 relay operated	Directional Over Current and Earth fault along with 86 relay operated. Indication 1,& 3. General Tripped 4. Over current and Earth fault operated	Line Segments	Temporary fault due to heavy snowfall	Reset the relays and test Charged the Transformer and hold normal
14	05-02-2022	14:45	05-02-2022	14:50		15.9	20MVA Transformer - 1	The 33kV outgoing was not effected as the feeders was fed from 20MVA Transformer II	Due to Tripping of 66kV Changedaphu feeders, 20MVA Transformer 1 was tripped	Only Relay 86 was operated	Line Segments	Temporary fault due to heavy snowfall	Reset the relays and test Charged the Transformer and hold normal
15	05-02-2022	14:45	05-02-2022	14:50		66kV Bus Coupler		The 33kV outgoing was not effected as the feeders was fed from 20MVA Transformer II	Over Current and Earth fault along with 86 relay operated	Over current and Earth fault relay 50/51. Indication 1,2 3. Over current operated . 3. Earth Fault Operated along with Trip relay- 86	Line Segments	Temporary fault due to heavy snowfall	Reset the relays and test Charged the 66kV Bus and hold normal
16	05-02-2022	15:16	05-02-2022	15:18		8.5	20MVA Transformer - 1	The 33kV outgoing was not effected as the feeders was fed from 20MVA Transformer II	Due to Tripping of 66kV Changedaphu feeders, 20MVA Transformer 1 was tripped	Only Relay 86 was operated	Line Segments	Temporary fault due to heavy snowfall	Reset the relays and test Charged the Transformer and hold normal
17	05-02-2022	15:16	05-02-2022	15:18		66kV Bus Coupler		The 33kV outgoing was not effected as the feeders was fed from 20MVA Transformer II	Over Current and Earth fault along with 86 relay operated	Over current and Earth fault relay 50/51. Indication 1,2 3. 1 General trip. 2 Over current operated . 3. Earth Fault Operated along with Trip relay- 86	Line Segments	Temporary fault due to heavy snowfall	Reset the relays and test Charged the 66kV Bus and hold normal
18	21-02-2022	08:48	21-02-2022	08:52		19.91	66kV Olakha - Changidaphu line	Olakha Substation	Dist Protn Relay - 21 Optd	DISTANCE PROTN RELAY-21 Optd Indication 1,2 3,12 & 13 . 1 General trip. 2 Distance Optd. 3 Zone 1 Optd. 12 LBB Optd.13 U/V Optd. & along with Trip relay- 86 & distance of fault at 11.5 km (Zone 1)	Line Segments	Transient Fault	Reset all the operated relay & indication and after consult with BPSO and charged the line & hold normal

	(D) 66/33/11kV Lobeysa Substation												
	66kV LSA - Basochu feeder												
1	05.02.2022	11:12hrs	05.02.2022	11:20hrs	0	-4.180	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 11:20hrs from Gewathang substation.
	66kV LSA - Dochula feeder												
1	05.02.2022	01:43hrs	05.02.2022	01:49hrs	0	12.020	66kV LSA - Dochula feeder	NA		Dist &86 relay operated			66kV LSA - Dochula feeder tripped at 01:43hrs and informed to BPSO and charged at 01:49hrs as per BPSO.
2	05.02.2022	02:13hrs	05.02.2022	02:29hrs	0	2.430	66kV LSA - Dochula feeder	NA		Dist &86 relay operated			66kV LSA - Dochula feeder tripped at 02:13hrs and informed to BPSO and charged at 02:29hrs as per BPSO with charging code 1212 .
3	05.02.2022	09:13hrs	05.02.2022	09:31hrs	0		66kV LSA - Dochula feeder	NA		Dist &86 relay operated			66kV LSA - Dochula feeder tripped at 09:13hrs and informed to BPSO and charged at 09:31hrs as per BPSO .
4	05.02.2022	09:39hrs	05.02.2022	10:04hrs	0		66kV LSA - Dochula feeder	NA		Dist &86 relay operated			66kV LSA - Dochula feeder tripped at 09:13hrs and informed to BPSO and charged at 09:31hrs as per BPSO .
5	05.02.2022	10:58hrs	05.02.2022	23:26hrs	12	5.000	66kV LSA - Dochula feeder	NA		Dist &86 relay operated			66kV LSA - Dochula feeder tripped at 10:58hrs and informed to BPSO and charged at 23:26hrs as per BPSO with the closing code 1225 .
6	15.02.2022	15:58hrs	15.02.2022	16:11hrs	0	-8.010	66kV LSA - Dochula feeder	66/33/11kV Lobeysa substation		NA			66kV LSA - Dochula feeder tripped at 15:58hrs and informed to BPSO and charged at 16:11hrs,at that time supply was feeded from Dochula to Gewathang end since their was line problem between Gewathang to Basochu(One phase conductor snapped)
7	15.02.2022	18:28hrs	16.02.2022	17:57hrs	23	-7.990	66kV LSA - Dochula feeder	66/33/11kV Lobeysa substation		Dist &86 relay operated			66kV LSA - Dochula feeder tripped at 18:28hrs and informed to BPSO kept the feeder trip and the supply was resumed from Basochu at 19:03hrs and Dochula supply synorized at 17:57hrs on 16.02.2022 after rejumpering at tower No.31 with the closing code 1821
	(E) 66/33/11 kV Paro Substation												
1	05.02.2022	00.25hrs 01.09hrs	05.02.2022	00.56hrs 14.30hrs	 13		66kV Haa line 66kV Haa line						
2	05.02.2022	24.56hrs 02.05hrs	01.02hrs 04.10hrs	 2	6 5		66kV chumdo line	Paro ss	Due to heavy snow fall	No relay operation		Long	
3	14.02.2022	02.05hrs 06.50hrs 07.05hrs	02.11hrs 06.55hrs 07.21hrs	 	6 5 16		66kV chumdo line	Paro ss	Tripped from changedaphu	No relay operation		transient	
4	21.02.2022	08.46hrs	21.02.2022	09.39hrs			66kV chumdo line	Paro ss	Tripped from changedaphu	No relay operation		transient	
	(F) 66/33/11kV Jemina Substation												
1	05.02.2022	00:07	05.02.2022	14:14	21	4.62	Both 66kv feeder chumdu and changedaphu	Blackout	O/C	186 &86	line segment		Upon test charging at 14:14 Hrs, line stood normal.(66kv olakha via changedaphu fdr. Jumpering out at IT park area.)
2	21.02.2022	08:48	21.02.2022	09:39	0		66kv Changedaphu feeder	66kv Changedaphu feeder		No relay operation at jemina end.	line segment		66kv supply fail from changedaphu end and resumed at 09:39hrs.
	(G) 66/33/11kV Dechencholing substation												
1	01.02.2022	16:58hrs	01.02.2022	17:05Hrs	0	-37.17	66KV Semtokha IC	whole s/s fdr.	Supply failed from source. Accerding the Semtokha operator line tripped due to under voltage.				
2	05.02.2022	00:00hrs	05.02.2022	00:05Hrs	0	0.747	66KV Damji Fdr.	Damji line	Tripped on dist relay optd.	Dist relay, 86A, 86B Zone-1	not known	Tripped	Test charged the fdr after getting closing code; 1205 from BPSO fdr stand normal.
3	05.02.2022	01:35hrs	09.02.2022	10:46hrs	105hrs	0	66KV Damji Fdr.	Damji line	Tripped on dist relay & O/C relay	Dist relay, 86A, 86B Zone-1; 4.661KM; IA 5.530A; IB 1.819A; IC 1.820A	It is confirmed that line has fault and issued the work permit to Olakha TMD for line patrolling, later they have found that two conductor was snapped and they re-stringing the conductor and brought back line to normn on dt 09.02.2022 at 10:46hrs.		
4	05.02.2022	09:13hrs	05.02.2022	09:20hrs	0	-4.528	66KV Semtokha IC	whole s/s fdr.	Supply failed from Source.				
5	05.02.2022	09:39hrs	05.02.2022	09:43hrs	0	-4.528	-do-	whole s/s fdr.	Supply failed from Source.				
6	05.02.2022	10:58hrs	05.02.2022	11:04hrs	0	-5.439	-do-	whole s/s fdr.	Supply failed from Source.				
7	15.02.2022	13:58hrs	15.02.2022	16:07	0	-37.38	66KV Semtokha IC	whole s/s fdr.	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	04.02.2022	20:19	04.02.2022	20:27	0	-2.81	66kV Incomer	All the feeders	unknown	O/C	Panghesa	Supply failed from Panghesa substation on operating over current. The same was normalised from their end.	
2	04.02.2022	20:54	04.02.2022	21:04	0	-2.81	66kV Incomer	All the feeders	unknown	O/C on three phases	Chumdo	Supply failed from Panghesa substation on operating over current. The same was normalised from their end.	
3	04.02.2022	22:00	05.02.2022	15:19	18hrs	-2.81	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 normalised from their end.	
4	20.02.2022	21:31	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 normalised from their end.	
5	21.02.2022	08:48	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 normalised from their end.	

	(I) 220kV Substation Semtokha											
	66kV and above Tripping											
1	06.02.2022	10:13hrs	06.02.2022	10:25hrs		-59.020	220kV Sem-BHP	Semtokha Substation	Phase to Phase Fault	Main-1 Zone 1 Trip, fault loop- L2-L2	Distance= 11.3KM	Trasient
2	05.02.2022	01:43hrs	05.02.2022	01:46hrs		43.09	66kV Sem-Dochula Line	Dochula Substation	Fault Loop= L1-N	Dir. EF Fault, fault loop- L1-N R,Y,Bph Trip	Distance=0.5KM	Trasient
3	05.02.2022	02:12hrs	05.02.2022	02:16hrs		1.55	66kV Sem-Dochula Line	Dochula Substation	Fault Loop= L1-L	Dist. Prot. Optd, fault loop- L1-L2	Distance=0.5KM	Trasient
4	05.02.2022	09:13hrs	05.02.2022	09:20hrs		51.46	66kV Sem-Dochula Line	Dochula Substation	Fault Loop= L1-L	Dist. Prot. Optd, I>2 Trip, Y&Bph Trip,Fault loop=L1-L2	Distance=0.00KM	Trasient
5	05.02.2022	09:39hrs	05.02.2022	09:46hrs		5.45	66kV Sem-Dochula Line	Dochula Substation	Fault Loop= L1-L	Dist. Prot. Optd, I>2 Trip, Y&Bph Trip,Fault loop=L1-L2	Distance=0.00KM	Trasient
6	05.02.2022	10:38hrs	05.02.2022	10:40hrs		0.42	66kV Sem-Dochula Line	Dochula Substation	Fault Loop= L1-L	Dist. Prot. Optd, I>2 Trip, Y&Bph Trip,Fault loop=L1-L2	Distance=0.00KM	Trasient
7	05.02.2022	10:58hrs	05.02.2022	11:32hrs		0.42	66kV Sem-Dochula Line	Dochula Substation	Fault Loop= L1-L	Dist. Prot. Optd, I>2 Trip, Y&Bph Trip,Fault loop=L1-L2	Distance=0.00KM	Trasient
8	05.02.2022	11:45hrs	05.02.2022	22:44hrs	11	0.42	66kV Sem-Dochula Line	Dochula Substation	Fault Loop= L1-L	Dist. Prot. Optd, I>2 Trip, Y&Bph Trip,Fault loop=L1-L2	Distance=0.00KM	Trasient
9	15.02.2022	15:57hrs	15.02.2022	16:11hrs		64.62	66kV Sem-Dochula Line	Dochula Substation	Fault Loop= L1-L	Dist. Prot. Optd, fault loop- L1-L2, (Ia= 536.5A, Ib=525.8A, Ic=538.0A)	Distance=0.00KM	Trasient
10	15.02.2022	18:27hrs	15.02.2022	18:39hrs			66kV Sem-Dochula Line	Dochula Substation	Fault Loop= L1-L	Dist. Prot. Optd, fault loop- L1-L2	Distance=12.00KM	Trasient
11	15.02.2022	18:46hrs	15.02.2022	18:59hrs			66kV Sem-Dochula Line	Dochula Substation	Fault Loop= L2-N	Dist. Prot. Optd, Yph Trip, fault loop- L2-N	Distance=8.7KM	Trasient
12	05.02.2022	02:29hrs	05.02.2022	02:33hrs		9.32	66kV Sem-Olakha Line	Olakha Substation	Overcurrent Trip	Back Up Relay Optd, I>> Trip, Y&Bph Trip		Trasient
13	05.02.2022	03:10hrs	05.02.2022	03:14hrs		8	66kV Sem-Olakha Line	Olakha Substation	Overcurrent Trip	Back Up Relay Optd, I>> Trip, Y&Bph Trip		Trasient
14	05.02.2022	3:28hrs	05.02.2022	03:31hrs		8	66kV Sem-Olakha Line	Olakha Substation	Overcurrent Trip	Back Up Relay Optd, I>> Trip, Y&Bph Trip		Trasient
15	05.02.2022	04:09hrs	05.02.2022	04:13hrs		6.11	66kV Sem-Olakha Line	Olakha Substation	Overcurrent Trip	Back Up Relay Optd, I>> Trip, Y&Bph Trip		Trasient
16	05.02.2022	05:54hrs	05.02.2022	05:56hrs		7.72	66kV Sem-Olakha Line	Olakha Substation	Overcurrent Trip	Back Up Relay Optd, I>> Trip, Y&Bph Trip		Trasient
17	05.02.2022	08:52hrs	05.02.2022	08:55hrs		15.17	66kV Sem-Olakha Line	Olakha Substation	Overcurrent Trip	Back Up Relay Optd, I>> Trip, Y&Bph Trip		Trasient
18	01.02.2022	16:59hrs	01.02.2022	17:06hrs		19.05	66kV Sem-Dechencholing Line	Dechencholing Substation	Under Voltage	Dist. Prot Optd, Rph Under Volatge Trip		Trasient
19	05.02.2022	01:43hrs	05.02.2022	01:45hrs			66kV Sem-Dechencholing Line	Dechencholing Substation	Overcurrent Trip	Dist. Prot Optd, Over current Trip		Trasient
20	05.02.2022	02:12hrs	05.02.2022	02:14hrs		4.78	66kV Sem-Dechencholing Line	Dechencholing Substation	Overcurrent Trip	Dist. Prot Optd, Over current Trip		Trasient
21	05.02.2022	09:39hrs	05.02.2022	09:43hrs		4.78	66kV Sem-Dechencholing Line	Dechencholing Substation	Under Voltage	Dist. Prot Optd, Under Voltage Trip		Trasient
22	05.02.2022	10:38hrs	05.02.2022	10:39hrs		5.21	66kV Sem-Dechencholing Line	Dechencholing Substation	Under Voltage	Dist. Prot Optd, Under Voltage Trip		Trasient
23	05.02.2022	10:58hrs	05.02.2022	10:04hrs		5.51	66kV Sem-Dechencholing Line	Dechencholing Substation	Under Voltage	Dist. Prot Optd, Under Voltage Trip		Trasient
24	05.02.2022	11:45hrs	05.02.2022	11:48hrs		5.51	66kV Sem-Dechencholing Line	Dechencholing Substation	Under Voltage	Dist. Prot Optd, Under Voltage Trip		Trasient
25	05.02.2022	18:41hrs	05.02.2022	18:49hrs		5.51	66kV Sem-Dechencholing Line	Dechencholing Substation	Under Voltage	Dist. Prot Optd, Under Voltage Trip		Trasient
26	05.02.2022	15:58hrs	05.02.2022	16:06hrs		33.3	66kV Sem-Dechencholing Line	Dechencholing Substation	Broken Conductor	Dist. Prot Optd, Broken conductor Trip		Trasient
	66kV and above Shutdown											

)66/33/11kV Pangbesa substation													
1	04.02.2022	20.15hrs	04.02.2022	20.29hrs	0	2.25	Haa line out	Haa substation	Due to heavy snow fall	Distance		transient	
2	04.02.2022	20.55hrs	04.02.2022	21.06hrs	0	2.18	Haa line out	Haa substation	Due to heavy snow fall	Distance		transient	
3	04.02.2022	22.27hrs	05.02.2022	14.35hrs	16		66kV chumdo line	Pangbasa /Haa substation	Due to heavy snow fall	No relay operation		Long	
4	05.02.2022	22.27hrs	05.02.2022	14.35hrs	16		66kV chumdo line	Pangbasa /Haa substation	Due to heavy snow fall	No relay operation		Long	
5	05.02.2022	24.56hrs	05.02.2022	01.02hrs	0		66kV chumdo line	Pangbasa /Haa substation	Due to heavy snow fall	No relay operation			
		02.05hrs		04.10hrs	0							Long	
6	20.02.2022	21.31hrs	20.02.2022	21.41hrs			66kV chumdo line	Pangbasa /Haa substation	Tripped from chumdo			transient	
7	21.02.2022	21.31hrs	20.02.2022	21.41hrs			66kV chumdo line	Pangbasa /Haa substation	Tripped from changedaphu	No relay operation		transient	
	(K) 66/33kV Changidaphu Substation												
1	05.02.2022	04:11hrs	05.02.2022	06:01hrs	1		66kV Changidaphu - Jemina Line	Changidaphu, Jemina, Chumdu, Paro and Haa Substation	Grid failed	CB hand tripped from Jemana end as per BPSO advice		Trasient	
2	21.02.2022	08:49hrs	21.02.2022	09:38hrs		19.31	66kV Changidaphu - Jemina Line	Changidaphu	Grid failed	Dist. Prtn trip, Zone 1 Y&Bph trip.		Trasient	
3	05.02.2022	06:00hrs	05.02.2022	08:19hrs	2		66kV Changidaphu - Olakha Line	Olakha, Changidaphu, Jemina, Chumdu, Paro and Haa Substation	Over Current	Dist. Prtn trip, Zone 1 RY&Bph trip, Over Current trip		Trasient	
	(L) 66/33kV Damji 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	0001 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 Dling & Damji Substation, kept feeder open
3	15.02.2022	1559 hrs	15.02.2022	1607 hrs	0	-3.67	66 kV Incoming Line	Whole Substation	Trip	NA			Line trip from Semtokha Substation
	(M) 66/11kV Dochula Substation												
1	16/2/2022	14:40	16/2/2022	18:07	3	50.07MW		Shut down taken to connect jumpering at Dochula Tower location SW31 with opening code 0365 and closing code 1281		Tower location SW31	Connection of jumper		

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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	13.03.2022	23:08	14.03.2022	13:05	13		66kV Pasakha feeder IV	Malbase s/s	Overcurrent & Earthfault	51N-start,IOC-50-start,86 optd,general trip,IEF 50N trip.			R phase=1916.55A<-166.86 deg, Y phase=101.55A<4.6deg, B phase=67.821A<-61.93deg, N=1916.55<-166.86deg.
2	13.03.2022	23:08	13.03.2022	23:23	0		66kV Pasakha feeder I	Malbase s/s	Overcurrent & Earthfault	51N-start,IOC-50-start,86 optd,general trip.			R phase=2553.36A<-162.72 deg, Y phase=54.6A<-154.5deg, B phase=61.34A<179.5deg, N=2666.11A<17.02deg.
3	13.03.2022	23:08	13.03.2022	23:23	0		66kV Pasakha feeder II	Malbase s/s	Overcurrent & Earthfault	51N-start,IOC-50-start,86 optd,general trip.			R phase=2306.81A<-170.6deg, Y phase=591.24A<93.34deg, B phase=546.46A<47.67deg, N=2306.81A<-170.6deg.
4	13.03.2022	23:08	13.03.2022	23:23	0		66kV Bus coupler	Malbase s/s	Overcurrent & Earthfault	50N trip			R phase=554.3A<-19.92deg, Y phase=110.61A<-16.34deg, B phase=110.65A<-32.1deg, N=777.63A<21.70deg.
(B)220/66/11 kV Singhigaon Substation													
1	13.03.2022	23:08	14.03.2022	13:04	13	-2	66kV Bhutan Concast Feeder	Singhigaon substation	overcurrent	IE>> DIR trip, I>> DIR trip, Directional time o/c trip.	-		IL1=50.16kA, IL2=0.4kA, IL3=0.8kA.
(D) 66/33/11 kV Gedu Substation													
1	01.02.2022	16:58	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	5:32	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	16:34	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.
(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:138.13KV and Fault angle :-7.55Deg.
2	21.02.2022	15:27	21.02.2022	15:59	0	5.32	50/63 MVA TRF 2 (305)	Dhamdum	Transient Fault	RET670	N/A	N/A	Fault Mag:138.11KV and Fault angle :-7.55Deg.
3	21.02.2022	15:27	21.02.2022	17:01	1	0.1	66kV Gomtu fdr.	Gomtu	Transient Fault	BBL670:General trip,Zone 1 trip, R phase and 86 relay trip.	N/A	-	Fault value:R phase fault mag:3400.74Amp and fault angle :-74.35 deg.

Tripping Report for the month of MARCH 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
	(A) 66kV Chunzu switching station												
1	07.03.2022	1254hrs	07.03.2022	1305hrs		1.38WM	66kV Jemina feeder	Fed from 66kV Chukha	Trip	O/c, 3ph, CB open	Chunzu	Trip	
	(B) 66/33kV Watsa Substation												
1	15/3/2022	14:33hrs	15/3/2022	14:36hrs		260MW	66KV SF6 breaker	Fdr. I and II	OC,OCH, EF and EFH on ABC phase	OC,OCH, EF and EFH on ABC phase	66KV SF6 breaker	Tripped	LT line cutoff and touches HT line at lomji chapcha as per RSD Chapcha
	(D) 66/33/11kV Lobeysa Substation												
	66kV LSA- Basochu feeder												
1	07.03.2022	12:53hrs	07.03.2022	13:04hrs	0	-18.900	66kV LSA - Basochu feeder	66/33/11kV Lobeysa substation		NA			66kV LSA - Basochu feeder tripped at 12:53hrs and charged the line as per BPSO at 13.04hrs (Grid fail)
	66kV LSA – Dochula feeder												
1	07.03.2022	12:53hrs	07.03.2022	13:04hrs	0	14.000	66kV LSA - Dochula feeder	66/33/11kV Lobeysa substation		NA			66kV LSA –Dochula feeder tripped at 12:53hrs and charged the line as per BPSO at 13.04hrs (Grid fail)
	(G) 66/33/11kV Dechencholing substation												
1	07.03.2022	12:52hrs	07.03.2022	13:03Hrs	0	-30.71	66KV Semtokha IC	whole s/s fdr	Supply failed from source.				
2	20.03.2022	14:56hrs	20.03.2022	15:05hrs	0	-28.28	66KV Semtokha IC	whole s/s fdr	Supply failed from source.				
3	20.03.2022	14:28hrs	24.03.2022	22:09hrs	104hrs	3.942	66KV Damji Fdr	Tripped at Semtokha I/C	While test charging fdr was not hold, then Olakha TMD team had started doing line patrolling about three days, however TMD didn't find the fault, later fault was at Substation side, then				
4	23.03.2022	22:43hrs	23.03.2022	22:50hrs	0	19.48	66KV Semtokha IC	whole s/s fdr	Supply failed from source.				
5	25.03.2022	20.25hrs	28.03.2022	16.51hrs	66hrs	3.957	66KV Damji Fdr.	Damji line	Tripped on over current & Earthfault relay optd.	O/C & E/F relay, 86A, 86B	Damji S/S	Tripped	Operator observed heavy spark in Y phase Cable joint at Damji and it took few days to repair the cable and charging the fdr.
					66KV side Shut down								
1	09.03.2022	11:08hrs	09.03.2022	13:07hrs	2hrs	1.081	66KV Damji Fdr.	Damji line	Shut down taken by Lobeysa TMD team to cleared the ROW of Damji line toward Gaza site				
	(H) 66/11kV Haa Substation												
1	19.03.2022	12:35	19.03.2	12:44	0	2.01	All the feeders	unknown	O/C	Chunzu	Supply failed from Chunzu substation as operating over current. The same was normalised from their end.	Supply failed from Pangbesa substation as operating over current. The same was normalised from their end.	
	(I) 220kV Substation Semtokha												
1	20.03.2022	14:26hrs	20.03.2022	14:30hrs		29.020	66kV Sem-Dechencholing Line	Dechencholing Substation	Earth Fault	Dist. Trip, Ia>> trip		Trasient	
2	20.03.2022	14:53hrs	20.03.2022	14:40hrs		29.020	66kV Sem-Dechencholing Line	Dechencholing Substation	Earth Fault	Dist. Trip, Ia>> trip		Trasient	
3	20.03.2022	14:58hrs	20.03.2022	15:04hrs		14.320	66kV Sem-Dechencholing Line	Dechencholing Substation	Earth Fault	Dist. Trip, Ia>> trip		Trasient	
4	23.03.2022	22:46hrs	23.02.2022	22:50hrs		19.580	66kV Sem-Dechencholing Line	Dechencholing Substation	Earth Fault	Dist. Trip, Ia>> trip		Trasient	
I)66/33/11kV Pangbesa substation													
1	19.03.2022	12:30hrs	19.03.2022	12:35hrs	0	1.45	Haa line out	Haa substation	O/C	Distance		transient	Sunny weather
	(L) 66/33kV Damji Substation												
1	07.03.2022	1255 hrs	07.03.2022	1306 hrs	0	-3.93	66 kV Incoming Line	Whole Substation	Trip	NA			Line tripped from Semtokha Substation
2	09.03.2022	1100	09.03.2022	1309 hrs	2	-3.95	66 kV Incoming Line	Whole Substation	Shutdown	NA			Shutdown avail by Mr. Karma Wangda, TL/SMD, Lobesa for RoW clearing
3	20.03.2022	1425 hrs	24.03.2022	2209 hrs	127	-3.9	66 kV Incoming Line	Whole Substation	Trip	NA			66 kV Line Fault due to cable termination fot failure at Gantry of Damji Substation. Used Incomer II cable
4	25.03.2022	2025 hrs	28.03.2022	1653 hrs	92	-3.9	66 kV Incoming Line	Whole Substation	Trip	NA			66 kV Line Fault due to cable termination fot failure at Incomer II of Gantry at Damji Substation. Restore incomer I cable. Closed CB of 66 kV line at 1824 hrs

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= 44.48A<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=327.52A<-65.89deg, IY=298.26A<173.79deg, IB=25.9A<95.63deg IN=292.13A<-124.45deg
3	14.04.2022	18:22	14.04.2022	18:25	0	-	220kV Bus Coupler	220kV samtse and singhigoan feeder and Malbase s/s		I0>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		Il1=2924A<269.2deg, IL2=87.22A<182.2deg, IL3=2847A<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 alaram b/k	malbase Substation	I1=55.56A< 89.49deg, I2=57.63A<-35.36deg,I3=60.02A<162.8deg,I4=10.87A155.22deg,
6	15.04.2022	01:34	15.04.2022	01:44	0	-186	400kV Tala feeder	Malbase s/s	O/C Y&B phase(Transient fault)	Air lockout shot, zone 1 trip, FL=18.57kM	18.57kM	IL1=186.5A, IL2=4.072kA, 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=311.69A<-134.17deg,IL3=2029.25A<72.98deg
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=40.2kM	IL1=2995A<273.8deg, IL2=68.79A<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=3778A<285.2deg,I2=4005A<164.9deg,I3=5084A<37.26deg,I4=1283A<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, B/U trip	flault loop L1-N=2.8km	IL1=8343A<285.9deg,IL2=39.17A<113.4deg,IL3=94.11A<110.8deg,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<-18.22deg,IL2=82.54A<-64.24deg,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=108.55A<115.19deg,Il2=96.4A<170.17deg,IL3=74.83A<121.3deg,IL4=342.73A<129.47deg
13	29.04.2022	08:11	29.04.2022	08:16	0	97	200MVA ICT	Malbase S/s		Diff Y phase,67 O/C, 86 opted		IL1=33.08A<139.7deg,IL2=34.71A<15.76deg,Il3=32.8A<-108.3deg
14	30.04.2022	12:45	30.04.2022	12:48	0	67	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,Il3=113.4A<-172.1deg
(B)220/66/11 kV Singhigoan 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 opted,O/C relay	line	I1=2140A, I2=84.91A, I3=2513A, 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, IEP DIR TRIP		Il1=1.18kA,IL2=1.24kA,IL3=11.74kA

(B)66/33/11 kV Phuntsholing 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 1376 from BPSO, since there was shutdown on 66kV Chukha-Pling (Chukha-Gedu section for RoW clearing and replacement of disc insulators at PC 135 & 136. At 17:35hrs 66kV Pling-Malbase feeder kept under idle condition with opening code 0475 from BPSO (CB opened at our end).
2			01.04.2022	10:38	10	idle	66kV Pling-Malbase feeder					At 10:38hrs charged 66kV Pling-Malbase feeder which was under idle charged condition with closing code 1382 from BPSO, since there was shutdown on 66kV Pling-Gomtu feeder for carrying out re-alingment 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 0484from BPSO. (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	13:08	13	idle	66kV Pling-Malbase feeder					At 13:08hrs charged 66kV Pling-Malbase feeder which was under idle charged condition with closing code 1420 from BPSO, 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 0508 from BPSO. (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 BPSO, since there was shutdown on 66kV Pling-Gomtu feeder for carrying out maintenace 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 BPSO. (CB opened at our end).
##	14.04.2022	18:20	14.04.2022	18:28	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	-1.87	66kV Chukha-Pling feeder	66kV Chukha-Pling feeder	Tripped at both end	Dist Optd, 186 & 86	Substation	The cause of tripping was due to trainsent fault.
##	16.04.2022	20:25	16.04.2022	20:30	0	-1.50	66kV Chukha-Pling feeder	66kV Chukha-Pling feeder	Overcurrent	I>>, Ia-1.055kA, Ib-1.037kA, Ic-51.26A Vab-11.89kV, Vbc-56.37kV, Vca-57.98kV In measured- 7.003A In derived- 7.182A, Van-20.24kV, Vbv-18.67kV, Vcn-38.38kV & 86	Tripped at their end	The cause of tripping was due to trainsent fault.
##	29.04.2022	08:11	29.04.2022	08:18	0	-1.98	66kV Chukha-Pling feeder	66kV Chukha-Pling feeder	Tripped at both end	Dist Optd, 186 & 86	Tripped at both end	The cause of tripping was due to trainsent 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 Olakha 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	18:20	14.04.2022	18:30	0	2.045	66kV Chukha-Pling Supply tripped.	Blackout	Bad weather		Line segment	Charged from Chukha
4	16.04.2022	15:34	16.04.2022	15:43	0	0.88	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 Tramsformer	Nil	For sealing bus PT leakage	Nil	Gomtu Substation	Shutdown for sealing bus PT leakahe 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 SMG 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	-2.068	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	-2.06	66kV Pling feeder	Gomtu	General trip	Nil	Line Segment	Grid failed
##	14.04.2022	18:23	14.04.2022	19:01	0	-7.137	66kV Dhamdhum feeder	Gomtu	Grid failed	Nil	Line Segment	Grild failed and supply resumed at 19.01 hrs.
##	14.04.2022	18:23	14.04.2022	18:28	0	3.58	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. 031 for sealing oil leakage form OLTC tank
##	27.04.2022	11:25	27.04.2022	11:41	0	-8.268	66kV Pling feeder	Nil	Transient fault	Nil	Gomtu Substation	Charged the line after informing BPSO and charge withstand. Charging code 1083
(F) 220/66/33 kV Dhamdum Substation												
1	14.04.2022	18:32	14.04.2022	18:58	0	-8.35	220KV Malbase	Dhamdum	heavy rain with thunder storm and wind	REL 670 trip	NA	Line tripped due to O/C on R&BØ, Zone: 1(General trip)
2	14.04.2022	18:32	15.04.2022	10:48	16	-1.66	Singeygoan	Dhamdum	heavy rain with thunder storm and wind	REL 670 trip	NA	Line tripped due to O/C on R&BØ, 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	-1.76	220kV Singeygoan	Dhamdum	heavy rain with thunder storm and windy	REL 670 trip	NA	Line tripped due to O/C on R&BØ, 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	Dhamdum	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	19:38	0	6.65	66KV Gomtu feeder	Dhamdum	heavy rain with thunder storm and wind	REL 670 trip	NA	Line tripped due to 86 tc 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	Singeygoan Feeder	Dhamdum	heavy rain with thunder storm and wind	REL 670 trip	NA	Line tripped due to O/C on R&YØ, Zone: 1(General trip) and over voltage OPTD.Fdr charged against charging code no : Nill from BPSO T/Phu.
7	19.04.2022	17:18	19.04.2022	18:07	0	-9.82	220KV Malbase feeder	Dhamdum	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	2.46	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 so 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, so 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&YØ(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,R 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 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 Chumdu switching station												
1	19.04.2022	1453hrs	19.04.2022	1502hrs		5.6MW	66kV Paro Feeder	Paro SS	transient fault	3ph, CB open	Chumdo	Trip	
	(B) 66/33kV Watsa Substation												
1	26/4/2022	14:54hrs	26/4/2022	15:08hrs		436MW	66KV SF6 breaker	Fdr. I and II	OC, OCH,EF and EFH on ABC phase	OC, OCH,EF and EFH on ABC phase	Fdr. 1 Watakha		33KV line snapped at betikha as per ESD betikha
3	29/4/2022	16:14hrs	29/4/2022	16:16hrs		2.49	66KV SF6 breaker	Fdr. I and II	Over current	Over Current relay operated		Tripped	As the CT ratio is set to full load and when the load reach max. got tripped. After finding the relay setting is not changed after changing CT ratio. Line charged after increasing Over current relay set.
	(C) 66/33kV Olakha Substation												
5	06-04-2022	12:25	06-04-2022	12:27		-20.95	66kV Olakha-Semtokha Line	Olakha SS	While testing	NA	Olakha SS	Testing	66kV Olakha-Semtokha line got tripped while testing of 20MVA-transformer-1 SF6 Breaker when CT primary injection was carried out.
8	12-04-2022	12:08	12-04-2022	12:13		No record at SCADA	66KV Bus coupler	Olakha Substation	While doing 86 relays connection and wiring by TCCD	Trip CKT-1 SUP Relay 195,Trip CKT-2 SUP Relay 295 & Trip relay SUP Relay 86/95	Substation	Transient	Reset all the operated relays & charged the line, hold normal.
9	14-04-2022	12:30	14-04-2022	12:32		9.9	20MVA Transformer - 1	Olakha Substation		DIR.O/C & E /F.PROTN Relay-67 Operated. Indication : 1 & 5, General Trip,5.Over Current & Earth Fault Operated along with relay 86	Lungtenphu SS	33kV line Lungtenphu feeder	As per verbal message received from Ugyen Lepcha (Lungtenphu Substation Incharge) said that 33kV Incomer tripped at their end & simantinously tripped 20 MVA transformer - I at our end ,reset all the operated relays & indications & charged ,hold normal.
10	14-04-2022	12:42	14-04-2022	12:44		9.9	20MVA Transformer - 1	Olakha Substation		DIR.O/C & E /F.PROTN Relay-67 Operated. Indication : 1 & 5, General Trip,5.Over Current & Earth Fault Operated along with relay 86	Lungtenphu SS	33kV line Lungtenphu feeder	As per verbal message received from Ugyen Lepcha (Lungtenphu Substation Incharge) said that 33kV Incomer tripped at their end & simantinously tripped 20 MVA transformer - I at our end ,reset all the operated relays & indications & charged ,hold normal.
	(D) 66/33/11kV Lobeysa Substation												
	66kV LSA - Gewathang feeder												
1	15.04.2022	20:09hrs	15.04.2022	20:18hrs	0	-19.440	66kV LSA - Gewathang feeder	NA		Dist relay operated(IA-107.2A,IB-145.2A&IC-138.9A)			66kV LSA - Gewathang feeder tripped at 20:09hrs and charged the line as per BPSO at 20:18hrs. Supply no interruption was feeded from Dochula end.
2	19.04.2022	00:37hrs	19.04.2022	00:42hrs	0	-14.920	66kV LSA - Gewathang feeder	66/33/11kV Lobeysa substation		Dist relay operated			66kV LSA - Gewathang feeder tripped at 00:37hrs and charged the line as per BPSO at 00:42hrs.
3	22.04.2022	21:14hrs	22.04.2022	21:28hrs	0	-17.220	66kV LSA - Gewathang feeder	66/33/11kV Lobeysa substation		Dist relay operated			66kV LSA - Gewathang feeder tripped at 21:14hrs and charged the line as per BPSO at 21:29hrs.
4	27.04.2022	23:02hrs	28.04.2022	00:07hrs	1	-14.180	66kV LSA - Gewathang feeder	NA		Dist relay operated(IA-71.61A,IB-104.8A&IC-85.43A)			66kV LSA - Gewathang feeder tripped at 23:02hrs and informed to BPSO.At 23:09hrs BPSO ask to closed the breaker but couldnot hold and again charged at 23:27hrs couldnot hold. After opening breaker at Gewathang end and closed the breaker at Lobeysa end with closing code 1094, line stand at 00:07hrs and breaker closed at Gewathang end at 00:11hrs.
	66kV LSA - Dochula feeder												
1	19.04.2022	00:37hrs	19.04.2022	00:51hrs	0	12.340	66kV LSA - Dochula feeder	NA		Dist relay operated			66kV LSA - Dochula feeder tripped at 00:37hrs and charged the line as per BPSO at 00:51hrs with closing code 1029.
2	22.04.2022	21:14hrs	22.04.2022	21:29hrs	0	12.020	66kV LSA - Dochula feeder	66/33/11kV Lobeysa substation		Dist relay operated			66kV LSA - Gewathang feeder tripped at 21:14hrs and charged the line as per BPSO at 21:29hrs.
	(E) 66/33/11 kV Paro Substation												
1	19.4.2022	14.46	19.4.2022	15.01	0		66kV Chumdo Line IN	Paro substation and its out goings	IDMT E/F & OC from chumdo end				

	(F) 66/33/11kV Jemina Substation												
	Nil												
	(G) 66/33/11kV Dechencholing substation												
1	22.04.2022	21:14hrs	22.04.2022	21:16Hrs	0	-23.61	66KV Semtokha IC	whole s/s fdr.	Incomer tripped on broken conductor	Distance relay and 86relay.	Not known	tripped	Test charged the line found healthy.
2	27.04.2022	23:04hrs	27.04.2022	23:07hrs	0	-25.31	66KV Semtokha IC	whole s/s fdr.	Incomer tripped on broken conductor	Distance relay and 86relay.	Not known	tripped	Test charged the line found healthy.
	(H) 66/11kV Haa Substation												
									Nill				
	(I) 220kV Substation Semtokha												
1	22.04.2022	21:15hrs	22.04.2022	21.19hrs			66kV Semtokha-Dochula Line	Dochula substation		Distance relay optd, Zone-1 trip (Ia=399A, Ib=4980A, Ic=4643A)	Distance=0.00km	Trasient	
2	29.04.2022	10:08hrs	29.04.2022	11:33hrs	1.00	-60.190	No Interruption	Shutdown avioded by BHP for testing energy meter at BHP end				Trasient	
J)	66/33/11kV Pangbesa substation												
									Nill				
	(K) 66/33kV Changidaphu Substation												
									Nil				
	(L) 66/33kV Damji Substation												
1	16.04.2022	1346 hrs	16.04.2022	1354 hrs	0	-4.14	66 kV Incoming Line	Whole Substation	Trip	NA			Line tripped from Semtokha Substation
2	22.04.2022	2115 hrs	22.04.2022	2118 hrs	0	-4.33	66 kV Incoming Line	Whole Substation	Trip	NA			Line tripped from Semtokha Substation
3	27.04.2022	2304 hrs	27.04.2022	2309 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	21:16	22/04/2022	21:21	0	-31.74	Semtokha	All 15x5MVA and 1x2.5MVA Transfomer	Under Voltage	86 Relay	Dochula, Lobesa and semtokha all end breaker open	Temporary fault	All DHI Farm House
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	21:16	22/04/2022	21:30	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	-30.07	Lobesa		Under Voltage	86 Relay	Dochula end & Lobesa end breaker open	Temporary fault	

May 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
(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	Mlabase Ss	O/C & E/F	General trip O/C & E/F			IL1=2319.32 /52.57deg,IL2=228A/ 88.26deg,IL3=198.06A/94.03deg,IL4=2332.57A/ 126.94deg
2	17/5/2022	12:03	17/5/2022	12:10	0	24	66kV Pasakha feeder II	Mlabase Ss	O/C & E/F	General trip O/C & E/F			IL1=0.11A/107.34deg,IL2=1144.25A/86.83deg,IL3=680.86A/106.94deg,IL4= 0.11A/107.34deg
3	21-05-2022	02:14	21-05-2022	02:45	0	106.18	400kV Malbase- Siliguri fdr.	Mlabase Ss	transient fault	General trip,186(RYB) optd			IL1=290.7A/51.77deg,IL2=119.4A/331.7deg,IL3=1364A/65.23deg,IL4=1646 A/58.34 deg.
	(B) 66/33kV Watsa Substation												
1	05-08-2022	11:59hrs	05-08-2022	12:26hrs		5.230MW	66KV SF6 breaker	Fdr. I and II	WTI tripped	WTI tripped	8MVA transforemer	Tripped	WTI tripped and reset the temperature to 75 with consultation with Mtc. Head SMD, and the line charged.
	(C) 66/33kV Olakha Substation												
									Nill				
	(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	-18.280	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	15.05.2022	14:20hrs	15.05.2022	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 - Dochula feeder													
1	10.05.2022	15:11hrs	10.05.2022	15:18hrs	0	10.470	66kV LSA - Dochula feeder	NA		OC & EF relay operated			66kV LSA - Dochula 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 - Dochula feeder	NA		OC & EF relay operated			66kV LSA - Dochula 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	29.05.2022	22:08hrs	29.05.2022	22:36hrs	0	12.200	66kV LSA - Dochula feeder	NA		Dist. relay operated(IA-6.543,IB-979.5A &976.4A)			66kV LSA - Dochula feeder tripped at 22:08hrs informed to BPSO and line charged at 22:10hrs from Gewathang ss and line extended to Dochula at 22:36hrs.
66/33kV,5MVA Transformer-4(All 33kV OG feeders connected together)														
1	10.05.2022	15:21hrs	10.05.2022	16:08hrs	0	1.380	33kV O/G-1	33kV O/G-1	Line fault	IDMT- E/F (IA-168.1A IB-272.8A IC-130.8A IN-217.9A)	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	0.800	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 05:36hrs and test charged at 05:37hrs 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	12:09hrs	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 12:09hrs and line stand thereafter.
	(L) 66/33kV Damji Substation													
1	11.05.2022	2033 hrs	11.05.2022	2038 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 Dochula Substation													
1	10-05-2022	15:11	05-10-2022	15:21	0	-32.3	Semtokha	All Farm House	Under voltage	86	Under voltage and 86 relay operated at Dochula end. Supply fail from Semtokha.			
2	11-05-2022	20.33	05-11-2022	20.58	0	-32.33	Semtokha	All Farm House	Under voltage	86	Under voltage and 86 relay operated at Dochula end. Supply fail from Semtokha.			
3	15/5/2022	14.19	15/5/2022	14:32	0	-30.36	Semtokha	All Farm House	Under voltage	86	Under voltage and 86 relay operated at Dochula end. Supply fail from Semtokha.			
4	29/5/2022	22:09	29/5/2022	22:23	0	-32.1	Semtokha	All Farm House	Under voltage	86	Under voltage and 86 relay operated at Dochula end. 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 Dochula end. 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 Dochula end. 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 Dochula end. Supply fail from Semtokha and lobeysa.			
8	29/5/2023	22:09	29/5/2023	22:39	0	-30.17	Lobesa	All Farm House	Under voltage	86	Under voltage and 86 relay operated at Dochula end. Supply fail from Semtokha and lobeysa.			

June 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/Areas 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]	400kV Malbase- Siliguri fdr.	Malbase Ss	[illegible]	[illegible]	[illegible]		[illegible]
2	03-06-2022	23:49	04-06-2022	00:15		9.12	200kV Malbase - Birpara feeder	Malbase Ss	O/C & E/F	[illegible]	[illegible]		[illegible]
3	03-06-2022	23:49	03-06-2022	23:59	0	23	50 MVA Transformer III	Malbase Ss		[illegible]			[illegible]
4	04-06-2022	00:24	04-06-2022	01:05	0	171.04	400kV Malbase- Siliguri fdr.	Malbase Ss		[illegible]	[illegible]		[illegible]
##	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	400kV Malbase- Siliguri fdr.	Malbase Ss	[illegible]	[illegible]	[illegible]		[illegible]
##	15-06-2022	04:19	15-06-2022	04:48	0	3	220kV Dhamdum feeder	Malbase Ss	O/C on Y & B phase	[illegible]	[illegible]		[illegible]
##	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	50 MVA Transformer III	Malbase Ss		[illegible]			[illegible]
##	15-06-2022	[illegible]	16-06-2022	13:50	30	-545	400kV Malbase- Siliguri fdr.	Malbase Ss		[illegible]	[illegible]		[illegible]
##	17-06-2022	23:07	17-06-2022	23:41	0	-100	220kV Chukha feeder	Malbase Ss		[illegible]	[illegible]		[illegible]
##	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	50 MVA Transformer III	Malbase Ss					[illegible]
##	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	50 MVA Transformer II	Malbase Ss		[illegible]			[illegible]
##	21-06-2022	03:01	21-06-2022	03:02	0		220kV bus coupler	Malbase Ss		[illegible]			[illegible]
##	21-06-2022	03:01	21-06-2022	03:10	0	4	220kV Dhamdum feeder	Malbase Ss		[illegible]			[illegible]
##	[illegible]	[illegible]	[illegible]	[illegible]	0		220kV bus coupler	Malbase Ss		[illegible]			[illegible]
##	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	50 MVA Transformer III	Malbase Ss					[illegible]
##	22-06-2022	22:01	22-06-2022	22:10	0	30	220kV Chukha feeder	Malbase Ss		[illegible]	[illegible]		[illegible]
##	22-06-2022	22:01	22-06-2022	22:30	0	20	50 MVA Transformer I	Malbase Ss		[illegible]			[illegible]
##	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21	50 MVA Transformer III	Malbase Ss		[illegible]			[illegible]
(B) 220/66/11 kV Singhigaon Substation													
1	04.06.2022	23:31	05.06.2022	10:37	10	0.842	11kV Feeder 2	Singyegoan ss	[illegible]	[illegible]			[illegible]
2	03.06.2022	12:58	03.06.2022	13:07	0	0.142	11kV Feeder 1	Singyegoan ss	Shutdown				[illegible]
3	17.06.2022	03:29	17.06.2022	14:40	11	0.047	11kV Feeder 1	Singyegoan ss	[illegible]	[illegible]			[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	66kV Singhi-Samtse feeder	Singyegoan ss	O/C & E/F	[illegible]			[illegible]
##	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	220kV Singhi-Samtse feeder	Singyegoan ss	O/C & E/F				[illegible]
(C) 66/33/11 kV Phuntsholing Substation													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Remaining sections of the table ((C) Phuntsholing, (D) Gedu, (E) Gomtu, (F) Dhamdum and the second table with sections (A)–(M)) are illegible at the scanned resolution.

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/Areas affected by the fault	Reasons of fault	Relay operations	Exact location of fault [Line segment/ Substation]	Type of outages	Remarks
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

July 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	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-RCV, 2M3 trip, fuse fail	193km		IL1=1672A<303.7deg,IL2=748.2A<255.3deg,IL3=718.4A<133.1deg,IL4=1599A<278.9deg
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, AR lock out shut	Zone 1= 8.001km		IA=3.679kA, I2=3.967kA, I3=3.732kA
##	18.07.22	03:06	18.07.22	04:35	1	5.6	200kV Malbase - Samtse feeder	Dhamdum Ss	O/C on B phase	86 optd			IL1=75.95A<220.7deg,IL2=116.5A<235.2deg,IL3=2538A<41.95deg.IL4=2347A<41.59deg.
##	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	38.55km		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 optd, 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 optd, General trip			IL1=0.19A< 0.05deg, IL2=656.02A<-156.39deg, IL3=662.70A<23.20deg, IL4=0.19A< 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 optd, general trip			IL1=809.15< 14.74deg, IL2=1657.84A<17.40deg, IL3=208.51A<53.29deg, 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 optd, general trip, IEF_50_trip			IL1=648.57A<-115.40deg,IL2=12463.04A< -131.23deg,IL3=236.83A<98.24deg,IL4=12947.29A< -131.26deg
##	28.07.22	11:38					66kV pling feeder	Malbase Ss	O/C	Trip phase N, Earth Fault 1, Trip IN1>3			IL1= 8.397A, 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 Singhigoan Substation													
1	17.07.22	03:32	17.07.22	03:45	0	0.897	220kV Singhi-Samtse Feeder	Singyegoan ss					couldnt download fault due to Digsi software communication problem.
##	28.07.22	23:39	28.07.22	23:44	0	4	66kV B/Concast feeder	Singyegoan ss					IL1=113.84kA, 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		DSTN OPTD, 186&86	Tripped at both end		At 17:19hrs 66kV Chukha-Pling feeder got tripped from both end. At 17:26hrs normalised 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,Serina Bosokha.
##	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 normalised 66kV Chukha-Pling feeder from Chukha and at 17:27hrs normalised 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,Serina Bosokha.
(D) 66/33/11 kV Gedu Substation													
1	03.07.2022	17:20	03.07.2022	17:28	0	1.72	66kV Gedu- Chukha	Blackout	Bad weather		Line segment		66kV supply failed from CHP. At 17:27hrs 66kV supply charged from Phuentsholing Substation.
	06.07.2022	9:02	06.07.2022	9:45	0	1.33	66/11kV 5MVA Tr.- I	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.

(E) 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 50y 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 57NX	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	10:35	1	2.82	66kV Phuentsholing feeder	Nil	Spark on R phase CB terminal	Nil	Gomtu substation	Emmergency Shutdown	Availed emergency shutdown by SubStation Head against Work Permit No. 074, opening code 6868 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
(F) 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 fauly, 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 BOSO for test charging.
2	28.07.2022	18:56	28.07.2022	19:09	0	7.41	66kv Gomtu fdr	Gomtu	thundering,lightning,windy and raining at Samtse	General trip,Zone 1 trip, Y phase fauly	NA	line fault	REF670:General trip Zone 1,O/C on YØ Abs Dist: 2.39 Re I Dist: 15.92% Fault loop - L2N # Charged the feeder based upon the charging Code:1854, BPSO T/phu, 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 affacted by the fault	Reasons of fault	Relay operations	Exact location of fault [Line segment/ Substation]	Type of outages	Remarks
	(A) 66kV Chumdu switching station												
1	01.07.2022	1838hrs	01.07.2022	1843hrs		(-) 11.1MW	66kV Chukha Feeder	Paro substation	E/fault	Due to E/F IA 151.4A IB 681.6A IC 157.5A	66kV Transmission Line	Trip	
2						7.62MW	66kV Pangbasa Feeder	Pangbasa Substation	Transient fault	3Ph and General trip	66kV Transmission Line	Trip	
3				1925hrs		(-) 1.94MW	66kV Jemina Feeder	Paro and Pangbasa	Transient fault	3Ph and General trip	66kV Transmission Line	Trip	Kept feeder open as per BPSO.
4	26.07.2022	1058hrs	26.07.2022	1551hrs	4hrs	(-)2.1MW	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 bu CNPD for checking the operation of Linne abd Bus isolators electrically as SCADA installation is in process at Jemina.
	(B) 66/33kV Watsa Substation												
1	07-01-2022	189.38hrs	07-01-2022	18:43hrs		.620MW	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 Mtc. Head SMD, and the line charged.
	(C) 66/33kV Olakha Substation												
1	21-07-2022	17:15	21-07-2022	17:35	0	6.19	66/33kV 20MVA, Transformer I	Only 66/33kV 20MVA, Transformer I was effected	Over current and earth fault	Earth Fault Over Current Operated	Line Segment	Taken Shut down	The 66kV Olakha-Changidaphu was taken shut down by Manager Chundu Gyentshen of TMD, with work permit no 2507 and also with the shutdown approval from BPSO Thimphu for removal of flag pole installed at the line near Dago Ex lympo area with breaker opening code 0820. The line was charged after completion of the work with closing code 1617 at 17.38hrs 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	19:50hrs	0	-17.970	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 Dochula at 19:53hrs.
3	09.07.2022	02:18hrs	09.07.2022	02:18hrs	0	-18.720	66kV LSA - Gewathang feeder	66/33/11kV Lobeysa substation		Dist.relay operated(Zone 3 optd)			66kV LSA - Gewathang feeder tripped at 02:18hrs informed to BPSO and line charged at 02:19hrs from Gewathang ss and line extended to Dochula at 02:33hrs.
4	09.07.2022	12:23hrs	09.07.2022	12:24hrs	0	-20.240	66kV LSA - Gewathang feeder	66/33/11kV Lobeysa substation		Dist.relay operated(Zone 3 optd)			66kV LSA - Gewathang feeder tripped at 12:23hrs informed to BPSO and line charged at 12:24hrs from Gewathang ss and line extended to Dochula at 12:30hrs.
5	20.07.2022	19:53hrs	20.07.2022	19:56hrs	0	-23.050	66kV LSA - Gewathang feeder	66/33/11kV Lobeysa substation		Dist.relay operated(Trip B &C ,Zone 3 optd, IA-119.8A,IB-815.3,IC-686.1A)			66kV LSA - Gewathang feeder tripped at 19:53hrs informed to BPSO and line charged at 19:56hrs from Gewathang ss and line extended to Dochula at 20:01hrs.
					0								
	66kV LSA - Dochula feeder												
1	07.07.2022	06:15hrs	07.07.2022	06:20hrs	0	15.470	66kV LSA - Dochula feeder			NA			66kV LSA - Dochula 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	19:53hrs	0	15.840	66kV LSA - Dochula feeder			NA			66kV LSA - Dochula feeder tripped at 19:49hrs informed to BPSO and line charged at 19:50hrs from Gewathang ss and line extended to Dochula at 19:53hrs.
3	09.07.2022	02:18hrs	09.07.2022	02:18hrs	0	16.120	66kV LSA - Dochula feeder			NA			66kV LSA -Dochula feeder tripped at 02:18hrs informed to BPSO and line charged at 02:19hrs from Gewathang ss and line extended to Dochula at 02:33hrs.
4	09.07.2022	12:23hrs	09.07.2022	12:24hrs	0	-20.240	66kV LSA - Dochula feeder			NA			66kV LSA - Dochula feeder tripped at 12:23hrs informed to BPSO and line charged at 12:24hrs from Gewathang ss and line extended to Dochula at 12:30hrs.
5	20.07.2022	00:42hrs	20.07.2022	00:51hrs	0	14.850	66kV LSA - Dochula feeder			Dist Trip B & Dist Trip C,Zone 3 optd			Supply was resumed from Gewathang ss at 00:47hrs .66kV LSA - Dochula 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	14.850	66kV LSA - Dochula feeder			Dist Trip B & Dist Trip C,Zone 3 optd			Supply was resumed from Gewathang ss at 00:47hrs .66kV LSA - Dochula 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 - Dochula feeder			Dist Trip B & Dist Trip C,Zone 3 optd			66kV LSA - Dochula feeder tripped at 17:16hrs informed to BPSOand supply was extended from Gewathang at 17:17hrs and line extended at 17:20hrs towards Dchula.
	(E) 66/33/11 kV Paro Substation												
	Nil												
	(F) 66/33/11kV Jemina Substation												
66 kV side Tripping													
1	01.07.2022	18:39	01.07.2022	18:45	0	-3.870	66 kV Changedaphu	Black out	Earth fault	Non direcctional E/F operated	Line Segment	Transient	
2	01.07.2022	18:39	01.07.2022	19:26	0	1.950	66 kV Chumdo	Black out	Earth fault	Non direcctional E/F operated	Line Segment	Transient	Wheather lightninig at Chumdo end as per the BPSO personnel
	(G) 66/33/11kV Dechencholing substation												
1	01.07.2022	18:20Hrs	01.07.2022	18:37hrs	0	-21.48	66KV IC	All whole ss	Supply failed from source				
2	20.07.2022	00:42Hrs	20.07.2022	00:48hrs	0	-21.29	65KV IC	All whole ss	Supply failed from source				
	(H) 66/11kV Haa Substation												
1	01-07-2022	18:36	01-07-2022	18:48	0	-1.68	All	unknown	O/C	pangbesa	Tripped from Pangbesa end		
2	14-07-2022	00:44	14-07-2022	00:59	0	-0.66	All	unknown	O/C	pangbesa	Tripped from Pangbesa end		
3	14-07-2022	03:57	14-07-2022	04:23	0	-0.56	All	unknown	O/C	pangbesa	Tripped from Pangbesa end		
4	15-07-2022	01:57	15-07-2022	03:10	1hr	-0.63	All	unknown	O/C	pangbesa	Tripped from Pangbesa end		
5	18-07-2022	03:55	18-07-2022	04:12	0	-0.51	All	unknown	O/C	pangbesa	Tripped from Pangbesa end		

	(f) 220kV Substation Semtokha												
1	01-07-2022	18:21hrs	01-07-2022	18:26hrs			66/33kV 20MVA-1 transformer	Semtokha Substation	REF Trip	REF Trip.	Transient fault	Trasient	
2	01-07-2022	18:21hrs	01-07-2022	18:37hrs		21.81	66kv Semtokha- Dechencholing Line	Dechencholing and Damji Substation	Distance protection Optd., Zone 1, Trip B	Distance protection Optd., Zone 1, Trip B	Transient fault	Trasient	
3	07-07-2022	06:15hrs	07-07-2022	06:21hrs		49.05	66kv Semtokha-Dochula Line	Dochula s/s	Directional earth fault protection operated	OC/EF Optd, IN<<2 trip	Transient fault		
4	07-07-2022	06:15hrs	07-07-2022	06:21hrs		49.05	66kv Semtokha- Dechencholing Line	Dechencholing and Damji Substation	Broken Conductor	Distance protection Optd., BRC Trip	Transient fault		
5	08-07-2022	19:49hrs	08-07-2022	19:52hrs		45.95	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	02:19hrs	09-07-2022	02:26hrs		47.18	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	12:23hrs	09-07-2022	12:25hrs		45.81	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	00:50hrs			66kv Semtokha-Dochula Line	Dochula s/s	Y & Bph OC Trip	Backup OC/EF relay optd., Y&Bph I>2 Trip , fault Current Ia=225.9A, Ib=5.745kA, Ic=5.574kA, In=17.49	Transient fault		
9	20-07-2022	00:44hrs	20-07-2022	00:55hrs			66kv Semtokha- Dechencholing Line	Dechencholing and Damji Substation	Broken Conductor	Tripped on Broken Conductor, Fault Current Ir=131.3A, Ib=69.83A, Ic=84.01A			
10	20-07-2022	19:53hrs	20-07-2022	19:58hrs			66kv Semtokha-Dochula Line	Dochula s/s	Y & Bph OC Trip	Backup OC/EF relay optd., Y&Bph I>2 Trip , fault Current Ia=6.926A, Ib=5.734kA, Ic=5.544kA, In=0.00	Transient fault		
11	21-07-2022	17:16hrs	21-07-2022	17:31hrs			66kv Semtokha-Dochula Line	Dochula s/s	Y & Bph OC Trip	Backup OC/EF relay optd., Y&Bph I>2 Trip , fault Current Ia=151.7A, Ib=5.761kA, Ic=5.683kA, In=0.00	Transient fault		
g)66/33/11kV Pangbesa substation													
1	01.07.2022	18:36Hrs	01.07.2022	18:48Hrs	0		Haa Line	Haa	Shutdown	Tripped on E/F & O/C	Pan-Haa	Transient	Replacement of HT Fuse
2	14..07.2022	00:44Hrs	14..07.2022	1:00Hrs	0	0.7	Haa Line	Haa	Tripping	Dir.O/C	Pan-Haa	Transient	Cloudy
3	14..07.2022	3:58Hrs	14..07.2022	4:13Hrs	0	0.7	Haa Line	Haa	Tripping	Dir.O/C	Pan-Haa	Transient	Cloudy
4	14..07.2022	4:16Hrs	14..07.2022	4:22Hrs	0		Haa Line	Haa	Tripping	Dir.O/C	Pan-Haa	Transient	Cloudy
5	15..07.2022	1:56Hrs	15..07.2022	2:10Hrs	0		Haa Line	Haa	Tripping	Dir.O/C	Pan-Haa	Transient	Cloudy,Charged did not again
6	15..07.2022	2:10Hrs	15..07.2022	2:17Hrs	0		Haa Line	Haa	Tripping	Dir.O/C	Pan-Haa	Transient	Cloudy,Charged again,did not stand
7	15..07.2022	2:19Hrs	15..07.2022	2:39Hrs	0		Haa Line	Haa	Tripping	Dir.O/C	Pan-Haa	Transient	Cloudy,Charged again,did not stand
8	15..07.2022	2:39Hrs	15..07.2022	2:49Hrs	0		Haa Line	Haa	Tripping	Dir.O/C	Pan-Haa	Transient	Cloudy,Charged again,did not stand
9	15..07.2022	2:56Hrs	15..07.2022	3:08Hrs	0		Haa Line	Haa	Tripping	Dir.O/C	Pan-Haa	Transient	Cloudy,Charged Fault from Haa 11kV fdr.
10	18..07.2022	3:58Hrs	18..07.2022	4:07Hrs	0		Haa Line	Haa	Tripping	Dir.O/C	Pan-Haa	Transient	Cloudy

	(L) 66/33kV Damji Substation													
1	01.07.2022	1821 hrs	01.07.2022	1851 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 Dechencholing 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 Dochula Substation													
1	07-07-2022	06:15	07-07-2022	06:23		-31.83	66kV Semtokha	Semtokha - Dochula	Transit fault	under voltage and 86 relay	Semtokha	Temporary	DHI
2	07-07-2022	06:15	07-07-2022	06:27		-30.24	66kV lobeysa	Lobeysa - Dochula	Transit fault	under voltage and 86 relay	Lobeysa	Temporary	DHI
3	09-07-2022	19:48	09-07-2022	19:57		-31.16	66kV Semtokha	Semtokha - Dochula	Transit fault	under voltage and 86 relay	Semtokha	Temporary	DHI
4	09-07-2022	19:48	09-07-2022	20:00		-29.55	66kV Lobeysa	Lobeysa - Dochula	Transit fault	under voltage and 86 relay	Lobeysa	Temporary	DHI
5	09-07-2022	02:20	09-07-2022	02:35		-31.92	66kV Semtokha	Semtokha - Dochula	Transit fault	under voltage and 86 relay	Semtokha	Temporary	DHI
6	09-07-2022	02:20	09-07-2022	02:47		-30.34	66kV lobeysa	Lobeysa - Dochula	Transit fault	under voltage and 86 relay	Lobeysa	Temporary	DHI
7	09-07-2022	12.23	09-07-2022	12.27		-31.88	66kV Semtokha	Semtokha - Dochula	Transit fault	under voltage and 86 relay	Semtokha	Temporary	DHI
8	09-07-2022	12.23	09-07-2022	12.35		-30.17	66kV lobeysa	Lobeysa - Dochula	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 - Dochula	Transit fault	under voltage and 86 relay	Lobeysa	Temporary	DHI
10	20-07-2022	0.43	20-07-2022	0.55		-31.42	66kV Semtokha	Semtokha - Dochula	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 - Dochula	Transit fault	under voltage and 86 relay	Lobeysa	Temporary	DHI
12	20-07-2022	19:53	20-07-2022	19:59		-31.61	66kV Semtokha	Semtokha - Dochula	Transit fault	under voltage and 86 relay	Semtokha	Temporary	DHI
13	21-07-2022	17:16	21-07-2022	17:22		-30.28	66kV lobeysa	Lobeysa - Dochula	Transit fault	under voltage and 86 relay	Lobeysa	Temporary	DHI
14	21-07-2022	17:16	21-07-2022	17:32		-31.84	66kV Semtokha	Semtokha - Dochula	Transit fault	under voltage and 86 relay	Semtokha	Temporary	DHI

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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	01.08.2022	19:07	01.08.2022	21:05	1	139	200MVA ICT	Malbase Ss	PRD OPTD	PRD Y- Phase, 86 OPTD			IL1=276.3A,IL2=259.4A,IL3=231.3
2	08.08.2022	07:23	08.08.2022	07:29	0	25	66kV Pasakha I	Malbase Ss	O/C on R-phase	86 OPTD, General trip IEF-50N trip	line		IL1=1825.53A<-13.31, I2=219.37A<-130.54, I3=505.41A<151.16, IL4=1176.84a<164.80
3	08.08.2022	07:23	08.08.2022	07:30	0	26	66kV Pasakha 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	0	5.6	66kV Pasakha IV	Malbase Ss	O/C on R-phase	86 OPTD, General trip IEF-50N trip	line		IL1=2315.03A<-50.57, I2=292.37A<-98.58,IL3=180.51A<38.88
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=75.28A<174.65,IL3=313.80A<-52.28
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,166.39,IL3=189.88<120.21
7	18.08.2022	14:57	26.08.2022	16:59	194	59.2	220kV Malbase- Birpara fdr	Malbase Ss& Birpara SS		Zone 1 trip, AR OPTD	1.533KM		IL1=7.602KA, I2= 919.3A, I3=571.2A
8	18.08.2022	14:57	26.08.2022	17:12	194	70	220kv Malbase- Singhigoen fdr	Malbase Ss& Birpara SS		Dis Pickup I3 ON, Loop L3-Ef	.7Km		IL1=.00kA,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=408.93A<127.99
10	19.08.2022	06:35	19.08.2022	06:50	0	64	200MVA ICT	Malbase Ss	Temporary fault	86 OPTD	S/S		IL1=.131A,IL2=.004A,IL3=.095A

11	19.08.2022	06:35	19.08.2022	07:51	1	11	220kVMalbase-Samtse fdr	Malbase Ss-Samtse	Temporary fault	87 OPTD	line		IL1=58.774A<69.27,IL2=36.41A<254.4,IL3=59.17A<187.2,IL4=50.52A<167.3
12	19.08.2022	06:35	19.08.2022	10:26	3	-79	220kVMalbase-Chukha fdr	Malbase Ss- ChukhaS/S	Strart R-phase,	87 OPTD	line		IL1=764.2A<249.9,IL2=223.4A<57.86<57.86,IL3=568A<38.75IL4=50.52A<330.3
13	19.08.2022	06:35	19.08.2022	07:59	1	44	50/63 MVA Transformer I	Malbase Ss		86 OPTD,BBP OPTD	S/S		IL1=.01A<249.9,IL2=.06A<-91.03,IL3=.03A<-140.11,IL4=.00A<-173.34
14	19.08.2022	06:35	19.08.2022	07:32	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=5859.39A<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_50_trip			IL1=6420.49A<54.29,IL2=639.18A<128.62,IL3=6485.32A<109.52,IN=7519.76A<113.68
16	20.08.2022	01:45	20.08.2022	05:03	3	18.4	220kVMalbase-Samtse fdr	Malbase Ss-Samtse	E/F	M1 Trip, R phase Trip,Zone 1 Trip, B/U Trip	30.3 KM		IL1=184.6A,IL2=3503A,IL3=102.2A,IN=3286A
17	21.08.2022	05:32	21.08.2022	05:42	0	17	220kVMalbase-Samtse fdr	Malbase Ss-Samtse	O/C on R phase and Y -phase	M1 Trip, Zone 1 Trip,			IL1=6883A,IL2=6477A,IL=131.4A,IN=5197A
18	21.08.2022	05:32	21.08.2022	05:40	0	66	200MVA ICT	Malbase Ss	Temporary fault	87 OPTD			IL1=199.3A<38.98,IL2=185.6A<-84.24,IL3=158.1A<-155.3
19	21.08.2022	11:09				41	50/63 MVA Transformer I	Malbase Ss	LBB & PRD oparated did not charged, keped under shutdown	LBB Trip, 86POTD	S/S		LI1=289.54A<-2.17,LI2=280.11A<24.48,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<-119.75,IL3=1772.81<120.53,IL4=1753A<90.38
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=786.4A,IL2=789.53A<-120.42,IL3=790.83A<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=.22A<.00,IL2=577.20A<75.72,IL3=602.78A<-102.18
23	21.08.2022	18:10	21.08.2022	18:16	0	24	200MVA ICT	Malbase Ss	Temporary fault	86 OPTD	c		IL1=.073A<192.4,IL2=.047A<72.17,IL3=.357A<-134.3
24	21.08.2022	11:29	21.08.2022	15:21	3	-12.65	66kV malbase- Phuntsholing	Malbase Ss-Phuntsholing S/S	O/C	O/C Trip I>1,E/f 1	line		IA=530.4A,IB=505A,IC=503.2A,IN=4467A
25	21.08.2022	18:10	21.08.2022	18:32	0	-31	220kVMalbase-Chukha fdr	Malbase Ss- ChukhaS/S	Temporary fault	86 optd>	line		IL1=80.05A<145.1,IL2=65.89A<21.98,IL3=67.44A<276,IL4=5887A<70.5
26	21.08.2022	18:10	21.08.2022	18:30	0	15	66kV Pasakha IV	Malbase Ss	O/C	IEF-50N-ON-trip,General trip,86trip	line		IL1=2345.55A<32.88deg,IL2=372.63A<73.8deg,IL3=233.33A<1.47deg
27	21.08.2022	18:10	21.08.2022	18:19	0	23	50/63 MVA Transformer III	Malbase Ss	Temporary fault	BBP optd,Differential opted.	S/S		IL1=26A<11.32deg,IL2=218.14A<120deg,IL3=203.78A<118.97deg
28	21.08.2022	18:10	21.08.2022	18:33	0	13	220kVMalbase-Samtse fdr	Malbase Ss-Samtse	Temporary fault	B/B Trip	line		IL1=52.76A<71.65deg,IL2=32.99A<262.8deg,IL3=44.16A<139.2degIL4=51.50A<114.8deg
29	23.08.2022	14:32	23.08.2022	14:35	0	31	50/63 MVA Transformer III	Malbase Ss	Temporary fault	86 optd,Differential opted.	S/S		IL1=183.68A<6.41deg,IL2=72.46A<20.01deg,IL3=102.60A<81.95degIL4=282.29A<20.16deg
30	23.08.2022	14:32	23.08.2022	14:47	0	3	220kVMalbase-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=92.18A<350.7deg,IL2=3733A<160.8deg,IL3=33.3A<14.36degIL4=3603A<161.5deg
31	23.08.2022	14:48	23.08.2022	16:18	1	3	220kVMalbase-Samtse fdr	Malbase Ss-Samtse	O/C on Y & B phase and with E/F	General trip<Main-1 trip	line		IL1=56.29A<323.8deg,IL2=4350A<171.9deg,IL3=4075A<34.8degIL4=3153A<102.6deg
32	26.08.2022	18:35	26.08.2022	18:47	0	33	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<-52.67 deg, IL3=279.86A<-170.42 deg IL4= 300.45A<-96.03 deg
33	26.08.2022	18:35	27.08.2022	14:47	20	26.08	220kV Malbase- Birpara fdr	Malbase Ss& Birpara SS	Birpara line LA got punctured.	Phase ABC, Distance zone 1 tripped, AR Lockout , Fault location= 589.3m.	line		IA= 772.5A, IB= 639.9A, IC= 7.441kA
34					0								
35					0								

(B)220/66/11 kV Singhigoan Substation														
1	17.07.22	03:32	17.07.22	03:45	0	0.897	220kV Singhi-Samtse Feeder	Singyegoan ss						couldnt download fault due to Digsi software communication problem.
2	18.07.22	12:00	18.07.22	13:56	1	0.02	11kV Feeder 1	Singyegoan ss						IL1= 9.05kA, IL2= 7.87kA IL3= 1.73kA
3	18.07.22	17:50	18.07.22	20:35	2	3226	11kV feeder 8	Singyegoan ss						IL1= 8.03kA, IL2= 7.95kA IL3= 0.05kA
4	19.07.22	10:40	19.07.22	10:42	0	0.13	11kV Feeder 1	Singyegoan ss		Transit Fault				IL1= .01kA, IL2= 0.01kA, IL3= 0.19kA
5	23.07.22	16:59	23.07.22	17:31	0	0.122	11kV Feeder 1	Singyegoan ss						IL1= 1.08kA, IL2= 0.01kA, IL3= 1.16kA
6	24.07.22	09:09	24.07.22	09:10	0	0.057	11kV feeder I	Singyegoan ss	o/c & E/F,IEF Trip, General trip					IL1=0.29kA, IL2= 0.01kA, Il3= 0.01kA
7	26.07.22	20:50	26.07.22	21:13	0	0.953	11kV feeder II	Singyegoan ss		Tripped on O/C Y&B Phase				IL1= 0.07kA, IL2= 3.54kA, IL3= 3.11kA
8	28.07.22	23:39	28.07.22	23:44	0	4	66kV B/Concast feeder	Singyegoan ss						IL1=113.84kA, IL2= 58.93kA, IL3= 95.53kA
(B)66/33/11 kV Phuntsholing Substation														
1	13.08.2022	18:36	13.08.2022	18:40	0	-4.77	66kV Chukha-Pling feeder	Black out at Pling ss			Tripped at chukha end			At 18:36hrs 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 normalised the 66kV Chukha-Pling from Chukha end and at 18:45hrs normalised 66kV Pling-Gomtu feeder after getting clearance from BPSO.
2	13.08.2022	18:36	13.08.2022	18:45	0	-1.04	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-57.51kV, INM-11.72A 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 18:24hrs 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	14:26	14.08.2022	18:56	4	-1.57	66kV Pling-Gomtu fdr	66kV Pling-Gomtu fdr	Shutdown	Nill	Line			At 14:26hrs 66kV Pling-Gomtu feeder taken shut down by TMD,Pling against work permit no 004 with opening code 0941 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	-2.97	66kV Chukha-Pling feeder	Black out at Pling ss	Tripped at their end	Nill	Tripped at their end			Tripped at Chukha end.
6	18.08.2022	15:25	18.08.2022	15:45	0	-3.15	66kV Pling-Gomtu fdr	Black out at Pling ss	Earthfault	In>>, Ia- 54.61A, Ib-1.026kA,Ic-1.052kA,VAB-48.21kV,VBC-9.162kV,VCA-44.53kV, INM-638.4A IND-638.1A, Van-31.37kV, Vbn-17.13kV, Vcn--13.69kV	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 134 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	-8.87	66kV Chukha-Pling feeder	66kV Chukha-Pling feeder		DSTN OPTD, 186&86				Test charged as per instruction from BPSO with charging code 156 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	-8.97	66kV Pling-Gomtu fdr	66kV Pling-Gomtu fdr		operated only 186 & 86				At 11:16hrs test charged as per instruction from BPSO with charging code 157 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 160 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	16:05		Idle charge	66kV Pling-Malbase fdr	66kV Pling-Malbase fdr						At 16:05hrs as per instruction from BPSO charged 66kV Pling-Malbase feeder which was under idle charge condition with closing code 190 from BPSO. At 16:111hrs opened CB of 66kV Pling-Malbase feeder with opening code 09684 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 50/63MVA transformwer II & III at Malbase end. At 17:31hrs opened CB of 66kV Pling-Malbase feeder with opening code 0986 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	15:26	18.08.2022	15:32	0	1.53	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	18:45	0	0.96	66kV Gomtu-Phuntsholing	Whole Gomtu	Grid failed	Nil	Chukha		Tripped from pling end
##	18.08.2022	15:25	18.08.2022	15:37	0	-7.784	66kV Dhamdhum Line	Gomtu	Tripped	General tripped.	Gomtu SS	Tripped	Supply charged as per the BPSO Instruction.
(F) 220/66/33 kV Dhamdum Substation													
1	18.08.2022	14:56	24.08.2022	18:02	3	-3.16	Singeygoan	Dhamdum	heavy rain with wind	REL 670 trip	NA		Line tripped due to E/F on BØ 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),R,Y,B Fault and VT fuse fail only
4	24.08.2022	15:15	25.08.2022	13:34	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 RØ 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 : 2.250A 2) L2: 2.424A 3) L3: 2.318A 4) I0: 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(Y & BØ) 1) L1 = 0.294A 2) L2 =1.998A 3) L3 = 1.965A 4) I0: 0.001A
7	23.08.2022	14:02	23.08.2022	14:05	0	9.2	66kV Gomtu feeder	_	Transient fault	REL 670 General trip,Zone2 trip,Bphase fault.	NA	-	Fault current value(BØ) I1= Fault mag.=162.22A, Fault angle=14.75deg. I2= Fault mag= 42.19A,Fault angle=145.01deg, I3=1882.45A,Fault angle= 43.65deg.
8	23.08.2023	14:02	23.08.2023	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 betikha. Line charged after opening faulty section as per ESD betikha.
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	2.86	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	2.86	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	5:04	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	5:04	04-08-2022	5:25	0	3.13	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	08:46Hrs	23.08.2022	09:56Hrs	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 -2.049Ω	Fault loaction: 29.23KM ;Zone-1	Tripped	charged the fdr as per the BPSO charging code No.163 and hold the fdr 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 normalised after resetting the relay.	
2	26.08.2022	06:06	26.08.2022	06:22	0	-0.81	66kV incomer	All	unknown	O/C & E/F	Pangbesa	The supply was normalised after resetting the relay.	
	(I) 220kV Substation Semtokha												
1	01-08-2022	16:21hrs	01-08-2022	16:23hrs		46.46	66kv Semtokha-Dochula Line	Dochula s/s	Y & Bph OC Trip	Backup OC/EF relay optd., Y&Bph I>2 Trip.IA=240.3A,IB=5.768kA, IC=5.605kA&IN=17.39A		Trasient	
2	04-08-2022	05:05hrs	04-08-2022	05:10:00hrs		46.46	66kv Semtokha-Dochula Line	Dochula s/s	Y & Bph OC Trip	Backup OC/EF relay optd., Y&Bph I>2 Trip.IA=211.7A,IB=5.740kA, IC=5.614kA&IN=16.88A		Trasient	
3	16-08-2022	07:31hrs	16-08-2022	07:34hrs		46.63	66kv Semtokha-Dochula Line	Dochula s/s	Y & Bph OC Trip	Backup OC/EF relay optd., Y&Bph I>2 Trip.IA=275A.7A,IB=5.712kA,IC=5.522kA&IN=17.99A		Trasient	
4	21-08-2025	05:32hrs	21-08-2022	05:47hrs		47.31	66kv Semtokha-Dochula Line	Dochula s/s	Y & Bph OC Trip	Backup OC/EF relay optd., Y&Bph I>2 Trip.IA=303.5A.7A,IB=5.68kA,IC=5.45kA&IN=17.11A		Trasient	
5	26-08-2022	18:34hrs	21-08-2022	18:46hrs		45.25	66kv Semtokha-Dochula Line	Dochula s/s	Y & Bph OC Trip	Backup OC/EF relay optd., Y&Bph I>2 Trip. O/C IA=263.2A,IB=5.799kA, IC=5.60SkA.		Trasient	

	(K) 66/33kV Changidaphu Substation												
1	26-08-2022	18:34hrs	26-08-2022	18:50hrs		-5.05	66kV Cangidaphu-Olakha Line	66kV Cangidaphu-Olakha Line		Distance Protectoin, Zone 2 Yph Trip, R=120.162, Y=566.002, B=625.669		Trasient	
	(L) 66/33kV Damji Substation												
1	23.08.2022	0844 hrs	23.08.2022	0858 hrs	0	-3.83	66 kV Incoming Line	Whole Substation	Trip	NA			Transmission Line tripped from Dechencholing Substation
	(M) 66/11kV Dochula Substation												
1	01-08-2022	16:21	01-08-2022	16:25		-32.06	66kV Semtokha	Semtokha - Dochula	Transit fault	under voltage and 86 relay	Semtokha	Temporary	1
2	01-08-2022	17:21	01-08-2022	16:31		-30.45	66kV Lobeysa	Lobeysa - Dochula	Transit fault	under voltage and 86 relay	Lobeysa	Temporary	1
3	04-08-2022	05:05	04-08-2022	05:15		-31.76	66kV Semtokha	Semtokha - Dochula	Transit fault	Under voltage and 86 relay	Semtokha	Temporary	1
4	04-08-2022	05:05	04-08-2022	05:18		-30.24	66kV Lobeysa	Lobeysa - Dochula	Transit fault	Under voltage and 86 relay	Lobeysa	Temporary	1
5	16-08-2022	7.31	16-08.22	7.35		-32.04	66kV Semtokha	Semtokha - Dochula	Transit fault	Under voltage and 86 relay	Semtokha	Temporary	1
6	16-08-2022	7.31	16-08-2022	7.37		-30.45	66kV Lobeysa	Lobeysa - Dochula	Transit fault	Under voltage and 86 relay	Lobeysa	Temporary	1
7	21-08-2022	05:32	21-08-2022	05:49		-32.89	66kV Semtokha	Semtokha - Dochula	Transit fault	Under voltage and 86 relay	Semtokha	Temporary	1
8	21-08-2022	05:32	21-08-2022	05:52		-30.29	66kV Lobeysa	Lobeysa - Dochula	Transit fault	Under voltage and 86 relay	Lobeysa	Temporary	1
9	26-08-2022	18:34	26-08-2022	18:48		-29.64	66kV Semtokha	Semtokha - Dochula	Transit fault	Under voltage and 86 relay	Semtokha	Temporary	1
10	26-08-2022	18:34	26-08-2022	18:42		-27.98	66kV Lobeysa	Lobeysa - Dochula	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	86optd, Diff Harm Blk			IL1= 85.52<167.70deg , IL2= 152.33A<64.93deg,IL3= 317.11A,-61.26deg,IL4= 178.63,-41.14deg. Transformer charged with charging code 252/BPSO
2	06-09-2022	00:08	06-09-2022	00:22	0	-134	220kV Chukha feeder III	Malbase Substation	Tripping	MiCOM Relay, START BN, Tripped Phase,ABC,Start Element Distance, Distance trip Zone ,AR lockout shot ,system frequency 49.93, fault duration:53.41ms, Relay time :81.78ms,	11.42 km		IA= 488.8A ,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 ,IEF_50N Trip,IOC_50-TRIP,GENERAL TRIP			IL1=11.2928A/-59.91deg,IL2=125.07A/-61.57deg,IL3=13239.57A/82.06deg, IL4= 9495.09A/20.76deg
4	07-09-2022	15:51	07-09-2022	15:59	0	17	66kV Pasakha fdr no I	Malbase Substation	Tripping	86 optd ,IEF_50N Trip,IOC_50-TRIP,GENERAL TRIP			IL1=1101.08A/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	10	220kV Malbase-Samtse	Malbase Substation	Tripping	M1 trip,Zone1 trip	10.3km		I1=24.26A<232.2, I2:56.69A<238.3, I3:2208A<39.58, I4:2134A<38.78
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=91.66A<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 =463.3A,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 =151.66 A< 112.19 DEG,IL3=63.07A <-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 = 106.82 A, IL2= 423.8 A. IL3= 284.97A,IL4= 217.19A
11	16-09-2022	19:34	16-09-2022	19:50	0	10.4	220kV Malbase-Samtse	Malbase Substation	Tripping	B/U Trip			LI=3031A,<270.4,L2=100.8A<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=111.5A<-132.39 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= 423.8 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	02:55	22-09-2022	03:00	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=80.02ms		Il1=10.94A,IL2=7.15KA,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=76.86A,<-41.48,IL4=322.34A,<-29.22
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=142.81A<-134.32deg,IL4=210.83A<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 =11.59Km,		IA=10.56A,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=4972A>284.6deg,IL2=6654A>164.7deg,IL3=4900A>38.75deg,IL4=994.7A>165.7deg
22	22-09-2022	04:04	22-09-2022	04:11	0	66	400/220kV, 200MVA ICT	Malbase Substation	Tripping	Buchhozl=trip			IL1=177.4A>40.06deg,IL2=181.4A>164.9deg,IL3=159.1A>66.65deg.
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= 0.63A>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. Il3=2509.85A>81.22deg, Il4=519.61A>-96.07deg
25	23-09-2022	01:57	23-09-2022	02:05	0	-	66kV Bus Coupler	Malbase Substation	Tripping	General Trip, 67 Trip, 67_ST2L3			IL1=919.04A>80.79deg, IL2=487.09A>125.7deg, Il3=4758.81A>66.65deg,Il4=5948.01A>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				Il1=711.85A-2.71deg,Il2=734.69A -124.06deg,Il3=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=806.11 A/18.89deg,IL3=829.52 A/-162.02deg. 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 /-156.57deg ,IL3=2202.32A/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 @14:45 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	N1-trip,86opted			IL1=1.233kil2=197.5k,il3=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=0.058A/35.35DEG,IL2=0.160A/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	0.42	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=2.650kA
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/200.1deg, Il2=132.9A/71.22deg, IL3=5504A/44.84deg, IL4=5284A/47.38deg
39	28-09-2022	18:40	28-09-2022	18:45	0	25	50MVA Transformer III	Malbase Ss	Tripping				027 TRIP, DIFF TRIP, Tripped value IL1=76.52A/-61.44deg, IL2=139.94A/-119.29deg,IL3=86.52A/-123.68deg, IL4=273.19A/-107.0deg
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	70	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	30.08	220kV Malbase-Bripara.	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<204deg,I2=113A<79.85deg,I3=101.32A,312.1deg,I4=6.067A<353.4deg.
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<28.63def,I2=28.26A<296.4deg,I3=28.82A,144.5deg,I4=82A<52deg.

(B)220/66/11 kV Singhigoan Substation													
##	07.09.2022	15:51	7.9.22	15:54	0	32	66kV Bhutan Concast fdr.	Singhigaon Ss	O/C	Directionl Time O/C trip,IE>>DIRECTIONAL TRIP,GENERAL TRIP, 86 OPTD.	line		IL1=1.14kA,IL2=0.26kA,IL3=0.34kA
##	07.09.2022	15:51	7.9.22	15:54	0	-	66kV Bus I	Singhigaon Ss	-	86 optd., IEp trip	-		-
##	16.9.22	19:34	16.9.22	20:58	1	3	220kVSinghgoen- Samtse	Singhigaon Ss	tripped	zone 1 trip fault loop l3-N 14.6Km	line		Il1=41.31A<194.2,IL2=45.02A<248.1,IL3=1358A<40.85,IL4=1284A<40.84
##	16.9.22	22:28	16.9.22	22:36	0	0.1	220kVSinghgoen- Samtse	Singhigaon Ss	tripped	General Trip, Zone 1 Trip, F/L=I1-N, Distance=33Km	line		I1=2891A<283.6deg,I2=86.15A<96.50deg,I3=88.81A<11.7deg,I4=2714A,283.6deg.
##	17.9.22	22:16	17.9.22	22:17	0	0.067	11kV feeder no I	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	0.06	11kV feeder no I	Singhigaon Ss	O/C	General trip, O/C trip, IEp trip	line		IL1=1.08kA IL2=0.01kA IL3=0.01kA
##	18.9.22	21:01	19.9.22	10:10	13	0.361	11KV Feeder III	Singhigaon Ss	O/C	IEp,time over current trip	line		Fault Current IL1=0.02KA IL2=0.02KA IL3=0.39KA
##	20.9.22	14:53	20.9.22	17:29	2	1.25	11KV Feeder III	Singhigaon Ss	O/C	IEp,time over current trip	line		IL1=0.02kA, Il2=0.02kA, IL3=0.39kA
##	21.9.22	02:04	21.9.22	11:52	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!	0.58	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	04:32	0	2.09	220kVSinghgoen- Samtse	Singhigaon Ss	tripped	-	line		IL1=525.1A<159.3deg,IL2=2342A<277.5deg,IL3=2308<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 trip, I>> Directional Trip,General trip.	line		IL1=0.46kA, IL2=1.11kA, IL3=5.62kA
##	23.9.22	17:27	24.9.22	13:47	20	26	66kV Bhutan Concast fdr.	Singhigaon Ss	tripped	Diff.time O/C trip,IE>>diff-trip,I>>diff. trip.	line		I1=4.35kA,I2=0.08kAII3=6.30kA 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=1.54kA

(B)66/33/11 kV Phuntsholing Substation													
1	07.09.2022	18:23	07.09.2022	18:28	0	-3.45	66kV Chukha-Pling feeder	Black out at Pling ss			Tripped at chukha end		At 18:36hrs 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 18:29hrs normalised the 66kV Chukha-Pling from Chukha end and at 18:32hrs normalised 66kV Dhamdhum-Gomtu feeder from Gotmu feeder.
2	07.09.2022	18:23	07.09.2022	18:32	0	-2.07	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	20:43	0	-3.09	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-Gonmtu feeder got tripped at Gomtu end) causing black out at Pling. At 20:43hrs normalised the 66kV Chukha-Pling from Chukha end and at 20:42hrs normalised 66kV Dhamdhum-Gomtu feeder from Gotmu feeder.
4	11.09.2022	20:35	11.09.2022	20:42	0	-3.05	66kV Pling-Gomtu fdr	Black out at Pling ss			66kV Dhamdum-Gomtu fdr tripped from Dhamdhum Ss		
5			11.09.2022	20:38	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 conidition after nomalising 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 22:22hrs normalised with charging code 287 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 black 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 againt 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	-3.02	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 againt 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 05:05hrs 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	07:42	27.09.2022	07:50	0	-3.00	66kV Chukha-Pling feeder	66kV Chukha-Pling feeder	Tripped at both end		Tripped at both end		The cause of tripping was due to transient fault.
27	28.09.2022	18:42	28.09.2022	18:52	0	-2.53	66kV Chukha-Pling feeder	66kV Chukha-Pling feeder	Tripped at both end	Tripping relay 186& 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	19:12	28.09.2022	22:46	3	-0.84	66kV Chukha-Pling feeder	66kV Chukha-Pling feeder	Tripped at both end	Tripping relay 186& 86	Tripped at both end		As per instruction from BPSO CB kept openend for 66kV Pling-at our end.
29			28.09.2022	19:16		Idle charge	66kV Pling-Malbase fdr	66kV Pling-Malbase fdr					At 19:16hrs charged 66kV Pling-Malbase with charging code 1444 since CB kept open for 66kV Pling-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 Pling-Malbase fdr	66kV Pling-Malbase fdr					At 10:23hrs charged 66kV Pling-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 Pling-Gomtu fdr	66kV Pling-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-Pling feeder	66kV Chukha-Pling feeder	Tripped at our end	DSTN OPTD, 186&86	Tripped at our end	Tripped on fault	Pling blackout since 66kV Pling-Malbase and Pling-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-Pling feeder	66kV Chukha-Pling feeder	Tripped at our end	DSTN OPTD, 186&86	Tripped at our end	Tripped on fault	Pling blackout since 66kV Pling-Malbase and Pling-Gomtu feeder got interrupted due to 220kV supply failure from Malbase end
34			30.09.2022	13:19		-5.07	66kV Pling-Malbase fdr	66kV Pling-Malbase fdr					At 13:19hrs CB opened for 66kV Pling-Malbase feeder with opening code 064 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	Balckout	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	Balckout	Bad weather condition		Line segment		66kV supply charged from Chukha end.
3	16.09.2022	19:34	16.09.2022	19:42	0	2.71	66kV Chukha-P/ling	Balckout	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	Balckout	Bad weather condition		Line segment		66kV supply charged from Chukha end.
5	22.09.2022	2:49	22.09.2022	3:15	0	1.1	66kV Chukha-P/ling	Balckout	Bad weather condition		Line segment		66kV supply charged from Chukha end.
6	22.09.2022	3:53	22.09.2022	5:13	1	1.1	66kV Chukha-P/ling	Balckout	Bad weather condition		Line segment		66kV supply charged from Chukha end.
7	23.09.2022	1:58	23.09.2022	2:05	0	1.36	66kV Chukha-P/ling	Balckout	Bad weather condition		Line segment		66kV supply charged from Chukha end.
8	28.09.2022	7:43	28.09.2022	7:47	0	2.03	66kV Chukha-P/ling	Balckout	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	Balckout	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	Balckout	Bad weather condition		Line segment		66kV supply charged from Chukha end.

(E) 66/33/11 kV Gomtu Substation													
1	07.09.2022	17:23	07.09.2022	17:28	0	2.23	66kV Phuentsholing feeder	Gomtu substation	Tripped from Chukha	Nil	Line segment	grid fail	Tripped from chukha end and supply resumed at 17:28hrs
2	07.09.2022	17:23	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 opned 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	13:33	0	2.48	66kV Phuentsholing feeder	Gomtu substation	Grid failed	Nil	Line segment	Transient fault	Tripped from pling end and supply resumed at 13:33hrs
13	22.09.2022	13:30	22.09.2022	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	3:27	23.09.2022	9:05	5	0.01	66/33kV 5MVA Transformer	Nil	Over current	IDMTL 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 SS could not charge Line.
17	23.09.2022	20:35	23.09.2022	20:45	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	20:35	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.
(F) 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	-10.28	220kV Malabase fdr.	Samtse	Lightining/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	Lightining/thunder and heavy rainfall	REL 670	Dhamdum Substation		General trip, Zone I trip,R phase fault.supply failed from Malbase end.
4	16.09.2022	22:31	16.09.2022	22:35	0	-0.07	Singeygoan	Samtse	Lightining/thunder and heavy rainfall	REL 670	Dhamdum Substation		General trip, Zone 1, Over current on RØ
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	23.09.2023	21:34	23.09.2023	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 affacted by the fault	Reasons of fault	Relay operations	Exact location of fault [Line segment / Substation]	Type of outages	Remarks
	(A) 66kV Chumdu switching station												
1	16.09.2022	2328hrs	16.09.2022	2347hrs		(-) 7.8MW	66kV Chukha Feeder	Paro,Pangbasa, Jemina	Grid Fail	No operation at chumdo	Generation end	Grid fail	Grid fail
2	22.09.2022	0246hrs	22.09.2022	0255hrs		(-) 7.8MW							
3	22.09.2022	0355hrs	22.09.2022	0453hrs		(-) 5.25MW							
4	24.09.2022	0815hrs	25.09.2022	1320hrs	5hrs	6.46MW	66kV Paro Feeder	Fed from Panbbasa Substation	S/down	CB open Line a & Bus isolator open, E/switch closed.	For 220kV LILO crossing	s/down	S/down by TPO Olakha asper the shutdown approval no.236
5	24.09.2022	1822hrs	24.09.2022	1837hrs		10.01MW	66kV Pangbasa Feeder	Pangbasa substation	Transient fault	CB open 3Ph	Chumdo	Tripped	Trip due to over
6	24.09.2022	1840hrs	24.09.2022	1847hrs		10.01MW							
7	28.09.2022	0752hrs	29.09.2022	1748hrs	9hrs	8.37MW		Fed from Paro Substation	S/down	CB open Line a & Bus isolator open, E/switch closed.	For 220kV LILO crossing	s/down	S/down by TPO Olakha asper the shutdown approval no.235
	(B) 66/33kV Watsa Substation												
1	16/9/2022	23:28hrs	16/9/2022	23:47hrs		.320MW	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	2:55hrs		.250MW	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		.250MW	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	28/9/2022	15:03hrs	28/9/2022	15:10hrs		1.57	66KV SF 6 breaker	Fdr. I and II	Over current on ABC phase	Over current relay operated	Fdr. II Chapcha/ Shemagangkha	Tripped	Line tripped due to tree fallen on 33KV damchu line at watsa while TMD Tsimalakha clearing 66Kv ROW

	(C) 66/33kV Olakha Substation											
1	16-09-2022	23:28	16-09-2022	23:47	0	-7.92	66kV Olakha-Semtokha	All 66kV Olakha-Semtokha and 66kV Olakha-Changidaghu was effected	Grid fail	Under Voltages operated	Transmission line	Grid fail	Grid fail from Chukha and Basicha. Charged from Chukha and and Basicha and stand normal
2	16-06-3033	23:38	16-06-3033	23:47	0	2.41	66kV Olakha-Changidaghu	All 66kV Olakha-Semtokha and 66kV Olakha-Changidaghu was effected	Grid fail	Under Voltages operated	Transmission line	Grid fail	Grid fail from Chukha and Basicha. Charged from Chukha and and Basicha and stand normal at Olakha end
3	21-09-2022	6:26	21-09-2022	6:53	0	4.39	90kV Olakha-Changidaghu	All 66kV Olakha-Semtokha and 66kV Olakha-Changidaghu was effected	Fault	Nil	Transmission line	Transient fault	The supply was tripped from Changidaghu end. There was no relay operations and only under voltage indications was operated at Olakha Substation
4	22-09-2022	2:29	22-09-2022	2:56	0	-5.8	66kV Olakha-Semtokha	All 66kV Olakha-Semtokha and 66kV Olakha-Changidaghu was effected	Grid fail	Under Voltages operated	Transmission line	Grid fail	Grid fail from Chukha and Basicha. Charged from Chukha and and Basicha and stand normal
5	22-09-2022	3:55	22-09-2022	4:19	0	-6.34	66kV Olakha-Semtokha	All 66kV Olakha-Semtokha and 66kV Olakha-Changidaghu was effected	Grid fail	Under Voltages operated	Transmission line	Grid fail	Grid fail from Chukha and Basicha. Charged from Chukha and and Basicha and stand normal
6	22-09-2022	4:27	22-09-2022	4:51	0	-9.34	66kV Olakha-Semtokha	All 66kV Olakha-Semtokha and 66kV Olakha-Changidaghu was effected	Grid fail	Under Voltages operated	Transmission line	Grid fail	Grid fail from Chukha and Basicha. Charged from Chukha and and Basicha and stand normal
7	22-09-2022	2:29	22-09-2022	2:56	0	2.11	66kV Olakha-Changidaghu	All 66kV Olakha-Semtokha and 66kV Olakha-Changidaghu was effected	Grid fail	Under Voltages operated	Transmission line	Grid fail	Grid fail from Chukha and Basicha. Charged from Chukha and and Basicha and stand normal
8	33-06-3033	3:55	33-06-3033	4:19	0	3.56	66kV Olakha-Changidaghu	All 66kV Olakha-Semtokha and 66kV Olakha-Changidaghu was effected	Grid fail	Under Voltages operated	Transmission line	Grid fail	Grid fail from Chukha and Basicha. Charged from Chukha and and Basicha and stand normal
9	22-09-2022	4:27	22-09-2022	4:51	0	3.06	90kV Olakha-Changidaghu	All 66kV Olakha-Semtokha and 66kV Olakha-Changidaghu was effected	Grid fail	Under Voltages operated	Transmission line	Grid fail	Grid fail from Chukha and Basicha. Charged from Chukha and and Basicha and stand normal
10	23-09-2022	3:48	23-09-2022	3:51	0	2.92	66kV Olakha-Changidaghu	Only 66kV Olakha-Changidaghu was effected	Fault	Under Voltages operated	Transmission line	Transient fault	No relays was operated at Olakha Substation and charged from Changidaghu end also it normal
11	21-09-2022	3:55	21-09-2022	5:02	0	5.87	66kV Olakha-Changidaghu	Only 66kV Olakha-Changidaghu was effected	Fault	Under Voltages operated	Transmission line	Transient fault	No relays was operated at Olakha Substation and charged from Changidaghu end also it normal

1	16.09.2022	23:28	16.09.2022	23:47	0	2.76 & 1.86 (both imports), Changedaphu & Chumdo respectively	66 kV Line Changedaphu & Chumdo	Black out	Supply failed from source, no operation at the Substation end.	Nil	Generation source	–	Supply failed from generation sources & no operation at the Substation end.
2	22.09.2022	02:50	22.09.2022	02:57	0	1.20 & - 1.68, Changedaphu & Chumdo respectively	66 kV Line Changedaphu & Chumdo	Black out	Supply failed from source, no operation at the Substation end.	Nil	Generation source	–	Supply failed from generation sources & no operation at the Substation end.
3	22.09.2022	03:56	22.09.2022	04:54	0	1.20	66 kV Line Chumdo	Black out	Grid fail also tripped the breaker at the Substation end.	SOTF	Grid fail		Supply failed from generation & also tripped the breaker at the Substation end.
4	22.09.2022	03:56	22.09.2022	06:30	2	-1.68	66 kV Line Changedaphu	Black out till 04:54 Hrs	Grid fail also tripped the breaker at the Substation end.	SOTF	Grid fail		Supply failed from generation & also tripped the breaker at the Substation end. As per the recommendation of BPSO, the line charged only at 06:30 Hrs.
	(G) 66/33/11kV Dechencholing substation												
1	16.09.2022	23:26Hrs	16.09.2022	23:46Hrs	0	-22.36	66KV Semtokha Incomer	Whole system blackout	Supply failed from source.				
2	22.09.2022	02:49Hrs	22.09.2022`	02:54Hrs	0	-20.90	66KV Semtokha Incomer	Whole system blackout	Supply failed from source.				
3	22.09.2022	03:55Hrs	22.09.2022	04:18Hrs	0	-21.61	66KV Semtokha Incomer	Whole system blackout	Supply failed from source.				
4	22.09.2022	04:28Hrs	22.09.2022	04:52Hrs	0	-21.61	66KV Semtokha Incomer	Whole system blackout	Supply failed from source.				
	(H) 66/11kV Haa Substation												
1	16.09.2022	23:28	16.09.2022	23:47	0	-0.97	66kV incomer	All	grid fail	O/C	Chukha power house	Supply tripped from the source	
2	18.09.2022	13:43	18.09.2022	13:50	0	-1.63	66kV incomer	All	grid fail	O/C & E/F	Chukha power house	Supply tripped from the source	
3	22.09.2022	02:49	22.09.2022	02:57	0	-0.68	66kV incomer	All	grid fail	O/C & E/F	Chukha power house	Supply tripped from the source	
4	22.09.2022	03:55	22.09.2022	04:45	0	-0.66	66kV incomer	All	grid fail	O/C & E/F	Chukha power house	Supply tripped from the source	
5	24.09.2022	10:10	24.09.2022	10:28	0	-1.64	66kV incomer	All	grid fail	O/C & E/F	Chukha power house	Supply tripped from the source	
6	24.09.2022	18:22	24.09.2022	18:46	0	-2.14	66kV incomer	All	grid fail	O/C	Chukha power house	Supply tripped from the source	
7	28.09.2022	07:52	28.09.2022	17:50	33	-2.23	66kV incomer	All	220 LILO crossing for Jampee substation	Nil	Chumdo switching station	Shutdown taken by TCP Olakha, Thinphu for 220kV LILO crossing for Jampee substation with the opening code No. 784 by BPSO. The same was normalised after getting the clear information with a closing code No. 1455 hr	

	(I) 220kV Substation Semtokha											
1	15.09.2022	18:10hrs	15.09.2022	18:20hrs		66kv Semtokha-Dochula	Dochula s/s	Y & Bph OC Trip	Backup OC/EF relay optd., Y&Bph I> Trip..IA=263.2A,IB=5.799 KA,IC=5.605KA,IN=17.26A		Transient	
2	16.09.2022	23:28hrs	16.09.2022	23:47hrs		220kV Semtokha-Chukha	Semtokha s/s	Grid Failed	Chukha black-out R-PH A-288.6A,Y-PHA-70.39A,B-PH-676.7A		Transient	
3	21.09.2022	06:28hrs	21.09.2022	06:48hrs		66kv Semtokha-Dochula	Dochula s/s	Y & Bph OC Trip	Backup OC/EF relay optd., Y&Bph I> Trip,IA=263.2A,IB=5.799 KA,IC=5.605KA,IN=17.26A		Transient	
4	22.09.2022	02:49hrs	22.09.2022	02:56hrs		220kV Semtokha-Punchu	Semtokha s/s	Grid Failed	Main-2 Optd., RYBph trip		Transient	
5	22.09.2022	02:49hrs	22.09.2022	03:08hrs		66kv Semtokha-Dochula	Dochula s/s	Y & Bph OC Trip	Backup OC/EF relay optd., Y&Bph I>2 Trip. O/C		Transient	
6	22.09.2022	03:55hrs	22.09.2022	04:18hrs		220kV Semtokha-Chukha	Semtokha s/s	Grid Failed	Main 2, RYB tripped		Transient	
7	23.09.2022	03:48hrs	23.09.2022	03:52hrs		66kv Semtokha-Dochula	Dochula s/s	Y & Bph OC Trip	Backup OC/EF relay optd., Y&Bph I> Trip..IA=174.A IB=5.749KA IC=5.623KA IN= 17.05A		Transient	
8	23.09.2022	04:56hrs	23.09.2022	05:01hrs		66kv Semtokha-Dochula	Dochula s/s	Y & Bph OC Trip	Backup OC/EF relay optd., Y&Bph I> Trip.IA=172.1A IB=5.212KA IC=5.026KA IN=17.01A		Transient	
9	23.09.2022	21:42hrs	23.09.2022	22:01hrs		220kV Semtokha-Punchu	Semtokha s/s		Main 2 protection Optd., RYBph trip.		Transient	
10	23.09.2022	21:42hrs	23.09.2022	22:04hrs		66kv Semtokha-Dochula	Dochula s/s	Y & Bph OC Trip	Backup OC/EF relay optd., Y&Bph I> Trip 1		Transient	
11	24.09.2022	02:47hrs	24.09.2022	02:54hrs		66kv Semtokha-Dochula	Dochula s/s	Y & Bph OC Trip	Backup OC/EF relay optd., Y&Bph I> Trip 1		Transient	
12	27.09.2022	10:59hrs	27.09.2022	11:19hrs	1	66kv Semtokha-Dochula	Dochula s/s	Y & Bph OC Trip	Backup OC/EF relay optd., Y&Bph I> Trip 1		Transient	
13	28.09.2022	18:37hrs	28.09.2022	18:45hrs		66kv Semtokha-Dochula	Dochula s/s	Y & Bph OC Trip	Backup OC/EF relay optd., Y&Bph I> Trip 1		Transient	
	(K) 66/33kV Changidaphu Substation											
1	15.09.2022	18:10hrs	15.09.2022	18:12hrs		66kV Changidaphu-Olakha Line	66kV Changidaphu-Olakha Line		Distance Protection, Zone 2 RYBph Trip		Transient	
2	16.09.2022	23:28hrs	16.09.2022	00:18hrs		66kV Changidaphu-Olakha Line	66kV Changidaphu-Olakha Line		Distance Protection, Zone 2 RYBph Trip		Transient	
3	21.09.2022	06:28hrs	21.09.2022	06:53hrs		66kV Changidaphu-Olakha Line	66kV Changidaphu-Olakha Line		Distance Protection, Zone 2 RYBph Trip		Transient	
4	22.09.2022	03:55hrs	22.09.2022	04:23hrs		66kV Changidaphu-Olakha Line	66kV Changidaphu-Olakha Line		Distance Protection, Zone 2 RYBph Trip		Transient	
5	23.09.2022	03:48hrs	23.09.2022	03:51hrs		66kV Changidaphu-Olakha Line	66kV Changidaphu-Olakha Line		Distance Protection, Zone 2 RYBph Trip		Transient	
6	23.09.2022	04:56hrs	23.09.2022	05:02hrs		66kV Changidaphu-Olakha Line	66kV Changidaphu-Olakha Line		Distance Protection, Zone 2 RYBph Trip		Transient	
7	23.09.2022	21:42hrs	23.09.2022	22:05hrs		66kV Changidaphu-Olakha Line	66kV Changidaphu-Olakha Line		Distance Protection, Zone 2 RYBph Trip		Transient	
8	24.09.2022	02:47hrs	24.09.2022	02:56hrs		66kV Changidaphu-Olakha Line	66kV Changidaphu-Olakha Line		Distance Protection, Zone 2 RYBph Trip		Transient	
9	28.09.2022	18:37hrs	28.09.2022	18:44hrs		66kV Changidaphu-Olakha Line	66kV Changidaphu-Olakha Line		Distance Protection, Zone 2 RYBph Trip		Transient	

	(L) 66/33kV Danji Substation												
1	16.09.2022	2328 hrs	16.09.2022	2348 hrs	0	-3.91	66 kV Dechencholing Danji Line	Whole Substation	Trip	NA	NA		Tripped from Semtokha Substation
2	19.09.2022	1008 hrs	19.09.2022	1513 hrs	5	0.01	Power Transformer I	NA	Shutdown	NA	NA		Avail shutdown by Cheki Ranchen for annual maintenance of Transformer
3	21.09.2022	0945 hrs	21.09.2022	1835 hrs	8	3.84	Power Transformer II	NA	Shutdown	NA	NA		Avail shutdown by Cheki Ranchen for annual maintenance of Transformer
4	22.09.2022	0249 hrs	22.09.2022	0254 hrs	0	-4.13	66 kV Dechencholing Danji Line	Whole Substation	Trip	NA	NA		Western Grid Failure
5	22.09.2022	0356 hrs	22.09.2022	0418 hrs	0	-4.12	66 kV Dechencholing Danji Line	Whole Substation	Trip	NA	NA		Western Grid Failure
6	22.09.2022	0936 hrs	22.09.2022	1159 hrs	2	2.19	Power Transformer I	NA	Shutdown	NA	NA		Avail shutdown by Cheki Ranchen for annual maintenance of Transformer i.e. testing of transformer
7	22.09.2022	1214 hrs	22.09.2022	1720 hrs	5	2.02	Power Transformer II	NA	Shutdown	NA	NA		Avail shutdown by Cheki Ranchen for annual maintenance of Transformer i.e. testing of transformer

	(L) 66/33kV Danji Substation												
1	16.09.2022	2328 hrs	16.09.2022	2348 hrs	0	-3.91	66 kV Dechencholing Danji Line	Whole Substation	Trip	NA	NA		Tripped from Semtokha Substation
2	19.09.2022	1008 hrs	19.09.2022	1513 hrs	5	0.01	Power Transformer I	NA	Shutdown	NA	NA		Avail shutdown by Cheki Ranchen for annual maintenance of Transformer
3	21.09.2022	0945 hrs	21.09.2022	1835 hrs	8	3.84	Power Transformer II	NA	Shutdown	NA	NA		Avail shutdown by Cheki Ranchen for annual maintenance of Transformer
4	22.09.2022	0249 hrs	22.09.2022	0254 hrs	0	-4.13	66 kV Dechencholing Danji Line	Whole Substation	Trip	NA	NA		Western Grid Failure
5	22.09.2022	0356 hrs	22.09.2022	0418 hrs	0	-4.12	66 kV Dechencholing Danji Line	Whole Substation	Trip	NA	NA		Western Grid Failure
6	22.09.2022	0936 hrs	22.09.2022	1159 hrs	2	2.19	Power Transformer I	NA	Shutdown	NA	NA		Avail shutdown by Cheki Ranchen for annual maintenance of Transformer i.e. testing of transformer
7	22.09.2022	1214 hrs	22.09.2022	1720 hrs	5	2.02	Power Transformer II	NA	Shutdown	NA	NA		Avail shutdown by Cheki Ranchen for annual maintenance of Transformer i.e. testing of transformer

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	21:57	07-10-2022	22:53	0	9	220kV malbase-Samtse	Malbase Substation	Tripping	B/U Trip, 86optd			I1=3262A<294.5,I2=3150A<149.9,I3=90.7A<52.43,I4=1704A<223.1
2	08-10-2022	00:05	08-10-2022	01:32	1	6	220kV malbase-Samtse	Malbase Substation	Tripping	M1--trip,zone1 trip,86optd	L2-N, 27.3kM		I1=195A<347.1,I2=4273A<4273A<162.3,I3=159.3A<344.4,I4=3917A<162.1
(B)220/66/11 kV Singhigoan Substation													
1	7.10.22	22:26	8.10.22	00:18	1	6	220kVSinghgoen- Samtse	Singhigaon Ss	tripped	-	line		
2	9.10.22	19:37	9.10.22	21:21	1	3.49	220kVSinghgoen- Samtse	Singhigaon Ss	tripped	-	line		O/C,General trip,I1=2720A<284deg,I2=79.73A<101.7deg,I3=95.77A<114.7deg,I4=2543A<283.3deg.
3	11.10.22	23:04	11.10.22	23:09	0	0.56	220kVSinghgoen- Samtse	Singhigaon Ss	tripped	-	line		
(B)66/33/11 kV Phuntsholing Substation													
1	08.10.2022	00:20	08.10.2022	00:52	0	-3.51	66kV Chukha-Pling feeder	Black out at Pling ss			Tripped at chukha end		At 00:20hrs 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 00:52hrs normalised the 66kV Chukha-Pling from Chukha end. At 00:47hrs normalised the 66kV Gomtu feeder with charging code 1493 from BPSO.
2	08.10.2022	00:20	08.10.2022	00:47	0	0.20	66kV Pling-Gomtu fdr	Black out at Pling ss		DSTN OPTD, 186&86	Tripped at our end		
3			08.10.2022	00:30		idle	66kV Pling-Malbase fdr	66kV Pling-Malbase fdr					At 00:32hrs charged 66kV Pling-Malbase feeder which was under idle charge condition with closing code 1491 from BPSO. At 00:58hrs opened CB of above fdr with opening code 072 from BPSO and said feeder kept under idle charged conidition after nomalising 66kV Chukha and Gomtu feeder.
4	11.10.2022	00:50	11.10.2022	00:55	0	-5.86	66kV Chukha-Pling feeder	66kV Chukha-Pling feeder	Tripped at both end	186&86	Tripped at both end		The cause of tripping was due to transient fault. Test charged after getting clearance from BPSO with charging code 1506 and stood normal.
5	23.10.2022	05:36	23.10.2022	05:46	0	-0.81	66kV Pling-Gomtu fdr	Black out at Pling ss		DSTN OPTD, 186&86	Tripped at our end		At 05:36hrs charged 66kV Pling-Gomtu feeder got tripped at our end. At 05:46hrs normalised the feeder after getting clearance from BPSO.
6			26.10.2022			idle	66kV Pling-Malbase fdr	66kV Pling-Malbase fdr					At 14:25hrs as per instruction from BPSO charged 66kV Pling-Malbase feeder which was under idle charged condition with charging code 1585. Opened CB of 66kV Pling-Malbase feeder at 14:30hrs with opening code 0136 as per instruction from BPSO and feeder was put back to idle charged condition.
(D) 66/33/11 kV Gedu Substation													
1	08.10.2022	0:21	08.10.2022	0:30	0	1.03	66kv chukha-pling fdr	Gedu Black Out					Due to lightning & thunderig 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 & thunderig tripped both source
(E) 66/33/11 kV Gomtu Substation													
1	02.10.2022	23:23	07.10.2022	14:06	110	0.01	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	-3.354	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	-3.354	66kV Dhamdhum feeder	Gomtu ss	Tripped	General tripped	Line segment	Transient Fault	General Tripped. Charged as per BPSO Instruction.
4	12.10.2022	11:05	12.10.2022	14:12	3	0	66/33kV 5MVA Transformer	33kv Samtse line	Shutdown	Nil	Gomtu SS	Shutdown	Availed shutdown against work permit No. 128 by maintenance team for inspection 33kV Samtse feeder breaker and trasnformer testing as Transformer is producing abnormalsound
5	23.10.2022	5:38	23.10.2022	5:55	0	-5.986	66kV Dhamdhum feeder	Gomtu ss	Grid failed	Nill	Line segment	Transient Fault	Grid failed from both the source
(F) 220/66/33 kV Dhamdum Substation													
1	07.10.2022	22:26	08.10.22	00:18	1	-6.01	220KV Sinngeygang Fdr.	-	Heavy rainfall, lightning & thunder	REL670	-	Trainsent fault	Tripped feeder due to Over current on YØ, Zone - I
2	08.10.2022	00:06	08.10.2022	01:32	1	-5.41	220KV Malabase Fdr.	Samtse Dzongkhang	Heavy rainfall, lightning & thunder	REL670	-	Trainsent fault	Supply tripped from Malabase end
3	09.10.2022	19:36	09.10.2022	20:00	0	-3.26	220KV Sinngeygang Fdr.	-	Heavy Raining	REL670	-	Trainsent fault	Feeder tripped due to Over Current on RØ (Zone I) 1) Fault Abs Dist. 6.95% 2) Fault Rel Dist. 17.37%
4	11.10.2022	22:04	11.10.2022	22:09	0	0.55	220KV Sinngeygang Fdr.	-	Heavy Raining	REL670	-	Trainsent fault	Feeder tripped due to Over Current on RØ (Zone I) General trip. value I1=FA 2189.52a,FM=76.69deg, IL2=FA 87.44A,FM=-71.46deg, IL3=FA96.28A,FM=75.89deg.
5	14.10.2022	11:08	14.10.2022	13:30	2	0.44	220KV Sinngeygang Fdr.	-	Shutdown	-	-	Shutdown	Shut down taken by Maintenance team Head (TMD) P/ling, Singyegoan. BPSO T/phu opening code word issued.090. Closing code No.1522

	(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) Chumdo	66 kV Line Changedaphu & Chumdo	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) Chumdo	66 kV Line Changedaphu & Chumdo	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) Chumdo	66 kV Line Changedaphu & Chumdo	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 Chumdo	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	Chumdo switching station	
2	18.10.2022	18:29	18.10.2022	18:57	0	-2.81	66kV incomer	All	grid fail	O/C	Chumdo switching station	
3	21.10.2022	18:41	21.10.2022	18:48	0	-3.04	66kV incomer	All	grid fail	O/C	Chumdo switching station	
4	22.10.2022	14:35	22.10.2022	14:40	0	-1.83	66kV incomer	All	Emergency shutdown	Nil	Chumdo 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	14:33	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., Y&Bph 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-288.6A.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													
5/11kV Dochula Substation													
	07-10-2022	02:05	07-10-2022	02:13		-32.22	66kV Semtokha	Semtokha - Dochula	Transit fault	Under voltage and 86 relay	Semtokha	Temporary	
	07-10-2022	02:05	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 Substation/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. I	Damdum	O/C	REF615 67TRIP		Trainsent fault	Trip along with Dorokha feeder.
	(C) 66/33kV Olakha Substation												
1	25-11-2022	10:02	25-11-2022	10:08	0	11.45	66kV Olakha-Changidaphu	Only 66kV Olakha-Changidaphu was effected	Under Voltage	Distance protection operated	Transmission line	Transient fault	Tripped due to distance portn, under voltage and trip relay 86 indicated.
	(H) 66/11kV Haa Substation												
1	29.11.2022	11:53	29.11.2022	13:55	2	1.18	5MVA Transformer - I	5MVA Transformer - I	Tan Delta testing	Nil	Haa substation	Shutdown availed by Mr. Ugyen Phuntsho, SMD, Semtokha to carryout Tan Delta testion of 5mva transformer - I vide work permit no. 2282, dated 29.11.2022. The same was normalised after completing the work.	Supply tripped from the source
2	29.11.2022	14:01	29.11.2022	15:50	1	2.23	5MVA Transformer - II	5MVA Transformer -II	Tan Delta testing	Nil	Haa substation	Shutdown availed by Mr. Ugyen Phuntsho, SMD, Semtokha to carryout Tan Delta testion of 5mva transformer - II vide work permit no. 2283, dated 29.11.2022. The same was normalised 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, SMD, Semtokha to carryout Tan Delta testion of 5mva transformer - I vide work permit no. 2284, dated 29.11.2022. The same was normalised 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	50.54mw	66kv Semtokha-Dochula Line	Dochula s/s	Over Current	Backup OC/EF relay optd., Y&Bph I> Trip.A=295.8A IB=5.728kA IC=5.522kA IN=17.78A		Trasient	
2	24-11-2022	10.02hrs	24-11-2022	10:26hrs	0	-57.01	220kV Semtokha-BHP Line	220kV Semtokha-BHP Line		Distance relay Main-2 Optd, RYBph trip			
3	30-11-2022	10:36hrs	30-11-2022	11:31hrs	0 hrs	-75.04	220kV Semtokha-CHP Line	Shutdown avialed by CHP, DGPC, to attend spark on Bph CT at CHP end.		Backup OC/EF relay optd., Y&Bph I> Trip,IA=263.24,IB=5.799KA,IC=5.605KA,IN=17.26A		Trasient	
	(M) 66/11kV Dochula Substation												
1	25-11-2022	10:02	25-11-2022	10:19		-32.22	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		-30.25	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													
##	03-12-2022	10:14	03-12-2022	13:12	2	0.08	10MVA Transformer I	Malbase Ss	Tripped		substation		Transfromer was kept under triped condition since it indicattes Drefferent triped and inspection was carried out physicaly and rellay setting checked & found normal
(B)220/66/11 kV Singhigoan Substation													
1													
2													
(B)66/33/11 kV Phuntsholing Substation													
1	06.12.2022	12:08				-12.54	66kV Pling-Malbase fdr	66kV Pling-Malbase fdr					At 12:08hrs Opened CB of 66kV Pling-Malbase feeder with opening code 0264 from BPSO and said feeder was kept under idle charged conidition.
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 1694 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 DHI load at Gedu end)
##	26.12.2022	23:18	26.12.2022	23:34	0	-8.64	66kV Pling-Gomtu fdr	66kV Pling-Gomtu fdr	Tripped	Dist Prot optd, 186 & 86	Line	Tripped on fault	At 23:25hrs test charged after getting clearance from BPSO but got tripped on same fault. Normalised the feeder after opening CB from Gomtu end.
(D) 66/33/11 kV Gedu Substation													
1	07.12.2022	8:55	07.12.2022	9:37	0	16	8MVA 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	8MVA 66/33kV TR-II	33kV DHI feeder-III	OTI trip	OTI trip	Substation		Work permit no. 42 issued to Mr. Parsu Ram JE, maintenance team for installation of radiator cooling fan.
3	10.12.2022	12:05	10.12.2022	14:19	2	6.58	8MVA 66/33kV TR-I	33kV DHI feeder-III	OTI trip	OTI trip	Substation		Work permit no. 44 issued to Mr. Parsu Ram JE, maintenance team for installation of radiator cooling fan.
4													
(E) 66/33/11 kV Gomtu Substation													
1	15.12.2022	13:03	15.12.2022	18:20	5	2.76	66/11kV 10MVA transformer	Gomtu ss	OLTC problem	Nil			Maintenance of OLTC
2	26.12.2022	23:19	26.12.2022	23:30	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 Protn. Zone-4 Rph Fault Yph Fault Bph Fault
3	26.12.2022	23:33	26.12.2022	23:36	0	10.69	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	23:24	26.12.2022	23:28	0	15.16	66Kv Gomtu Feeder	Gomtu s/s	O/C	General tripZone 3 trip RYB faulty		O/C	Tripped on O/C, General trip, Zone 3 trip, RY&B phase fault.IL1: Fault mag. 0.18A,Fault Ang. -141.99 IL2: Fault mag. 0.35A, Fault Ang. -77.27 IL3: Fault mag. 0.11A, Fault Ang. -21.50A

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 affacted 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	09:55hrs	23.12.2022	10:12hrs	0	17		220kV Semtokha-BHP Line	220kV Semtokha-BHP Line	Direct Trip Received	No relay operation		Trasient	