

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: January 23, 2022
Hours: 18:00 Hours

Date **Time** **Load(MW)**
 12-Jan-22 18:00hrs 492.25

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Line - I	0.00	THP under total Shutdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	0.00	400kV Malbase - Siliguri Line	-51.40	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	210.49	Unit-I on Standby. Unit-II under Annual Maintenance. 400kV MHP-JLG Line II, III & IV on standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line I (Interim) under Standby. 400kV JLG_ALI Line II (Direct) on Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	106.21	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	105.11	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	111.49	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	37.81	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	58.49	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	19.94	
		-	-	80MVA, 220/132kV ICT - II (HV)	20.20	
		-	-	220kV Tsirang - Jigmeling Line	-54.17	
-	-	132kV Gelephu - Salakati Line	-8.11			
Total	211.32	Auxiliary Consumption & Transformation Losses at Generator end	0.39%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	9.40	Unit-I on Standby. Unit-III under Annual Maintenance 220kV CHP_Birpara Line II under Breakdown since 29.12.21.
		Unit- II	84.23	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	52.41	
		Unit- IV	83.07	220kV CHP - Semtokha Line- IV	78.29	
		-	-	220kV Malbase - Birpara Line	-25.45	
		-	-	66kV CHP - Chumdo Line	22.49	
		-	-	66kV CHP - Gedu Line	1.67	
		-	-	3x3MVA, 66/11kV TFR	1.92	
Total	167.30	Auxiliary Consumption & Transformation Losses at Generator end	0.67%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	68.00	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	7.90	66kV BHP - Lobeyasa Line	28.49	
		Total	7.90	220kV BHP - Tsirang Line	-73.96	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.96	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	15.30	30MVA ICT, 220/66kV (HV)	21.78	
		Total	15.30	Auxiliary Consumption & Transformation Losses at Generator end	-1.25%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	25.31	Unit-I under Annual Maintenance. 220kV DHP-Dagapela Line on standby.
		Unit-II	25.51	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	16.66	
		-	-	5MVA, 220/33kV TFR		
Total	25.51	Auxiliary Consumption & Transformation Losses at Gen. end	0.78%			
7	60MW KHP	Unit- I	15.04	132kV KHP - Nangkhoh Line	10.29	Unit-II under Annual Maintenance. Unit III on Standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	18.68	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.78	
		Unit- IV	15.06	132kV Motanga - Rangia Line	3.73	
		Total	30.10	Auxiliary Consumption & Transformation Losses at Generator end	1.16%	

Note: Generation-Load Summary (MW) for January 23, 2022 at 18:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	216.01	337.63	336.60	-67.45	1.03
2	Eastern Grid	241.42	95.33	94.15	91.92	1.18
Total		457.43	432.96	430.75	24.47	2.21

Note: Generation-Load Summary for January 23, 2021 at 18:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	297.79	273.20	270.00	12.62	3.20
2	Eastern Grid	131.35	75.88	72.75	67.44	3.13
Total		429.14	349.08	342.75	80.06	6.33

NOTE- BHP load collected from site.

1. The Instantaneous load balance,calculated as (Total generation - (Total export-Import) - Total domestic load), do not tend towards zero. This could be due to the following reasons:

- i) Not all the meters are digital and nor are all the meter at all locations can be read at same time (say 9:00hrs) due to many meter to be read manually.
- ii) The clocks of all the locations are not synchronized.

2. This report is generated to give an idea of the generation & load flow for the system at a particular instant.

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: January 24, 2022
Hours: 09:00 Hours

Date	Time	Load(MW)
12-Jan-22	18:00hrs	492.25

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Line - I	0.00	THP under total shutdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	0.00	400kV Malbase - Siliguri Line	-57.56	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	204.36	Unit I on Standby. Unit II under Annual Maintenance. 400kV MHP-JLG Line II, III & IV on standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line I (Interim) under Standby. 400kV JLG_ALI Line II (Direct) on Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	125.41	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	80.10	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	93.79	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	41.45	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	65.25	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	17.73	
		-	-	80MVA, 220/132kV ICT - II (HV)	18.08	
		-	-	220kV Tsirang - Jigmeling Line	-41.01	
-	-	132kV Gelephu - Salakati Line	-3.56			
Total	205.51	Auxiliary Consumption & Transformation Losses at Generator end	0.56%			
3	336MW CHP	Unit- I	83.46	220kV CHP - Birpara Line- I	12.32	Unit-IV on Standby. Unit-III under Annual Maintenance. 220kV CHP_Birpara Line II under breakdown.
		Unit- II	83.16	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	72.90	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	59.46	
		-	-	220kV Malbase - Birpara Line	-35.96	
		-	-	66kV CHP - Chumdo Line	17.42	
		-	-	66kV CHP - Gedu Line	2.68	
		-	-	3x3MVA, 66/11kV TFR	1.66	
		Total	166.62	Auxiliary Consumption & Transformation Losses at Generator end	0.11%	
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	61.70	U/S Unit-I and L/S Unit-I under maintenance.
		Unit- II	7.50	66kV BHP - Lobeysa Line	24.65	
		Total	7.50	220kV BHP - Tsirang Line	-64.24	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.67	
		Unit- II	15.00	30MVA ICT, 220/66kV (HV)	17.93	
		Total	15.00	Auxiliary Consumption & Transformation Losses at Generator end	-1.24%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	26.29	Unit-I under Annual Maintenance. 220kV DHP_Dagapela Line on standby.
		Unit-II	26.51	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	15.60	
		-	-	5MVA, 220/33kV TFR	0.30	
Total	26.51	Auxiliary Consumption & Transformation Losses at Generator end	-0.30%			
7	60MW KHP	Unit- I	15.11	132kV KHP - Nangkhoh Line	12.61	Unit-III on standby. Unit-II under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilikhar Line	16.56	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.70	
		Unit- IV	15.08	132kV Motanga - Rangia Line	5.30	
		Total	30.19	Auxiliary Consumption & Transformation Losses at Generator end	1.06%	

Note: Generation-Load Summary (MW) for January 24, 2022 at 09:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	215.63	337.84	338.02	-81.20	-0.18
2	Eastern Grid	235.70	86.25	84.78	108.44	1.47
Total		451.33	424.09	422.80	27.24	1.29

Note: Generation-Load Summary for January 24, 2021 at 09:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	298.96	229.62	230.87	57.20	-1.25
2	Eastern Grid	131.35	62.86	62.00	80.63	0.86
Total		430.31	292.48	292.87	137.83	-0.39

NOTE-BHP data collected from Site.

- The Instantaneous load balance,calculated as (Total generation - (Total export-Import) - Total domestic load), do not tend towards zero. This could be due to the following reasons:
 - Not all the meters are digital and nor are all the meter at all locations can be read at same time (say 9:00hrs) due to many meter to be read manually.
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