

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: February 1, 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	-48.29	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	99.82	400kV MHP - Jigmeling Line - I	214.66	Unit-III 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	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	117.14	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)	113.16	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	37.81	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	58.98	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	20.36	
		-	-	80MVA, 220/132kV ICT - II (HV)	20.52	
		-	-	220kV Tsirang - Jigmeling Line	-55.47	
-	-	132kV Gelephu - Salakati Line	-10.55			
Total	216.96	Auxiliary Consumption & Transformation Losses at Generator end	1.06%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I under Periodic maintenance. Unit-III under Annual Maintenance. 220kV CHP_Birpara Line I under Shutdown. 220kV CHP_Birpara Line II under Breakdown since 29.12.21.
		Unit- II	86.18	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	58.10	
		Unit- IV	83.09	220kV CHP - Semtokha Line- IV	83.39	
		-	-	220kV Malbase - Birpara Line	-20.88	
		-	-	66kV CHP - Chumdo Line	22.70	
		-	-	66kV CHP - Gedu Line	1.18	
		-	-	3x3MVA, 66/11kV TFR	1.91	
Total	169.27	Auxiliary Consumption & Transformation Losses at Generator end	1.18%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	66.50	U/S and L/S Unit-I under maintenance.
		Unit- II	7.60	66kV BHP - Lobeyasa Line	28.63	
		Total	7.60	220kV BHP - Tsirang Line	-73.88	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	1.02	U/S and L/S Unit-I under maintenance.
		Unit- II	14.50	30MVA ICT, 220/66kV (HV)	22.33	
		Total	14.50	Auxiliary Consumption & Transformation Losses at Generator end	-0.77%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	23.42	Unit-I under Annual Maintenance. 220kV DHP-Dagapela Line on standby.
		Unit-II	23.62	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	10.24	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	23.62	Auxiliary Consumption & Transformation Losses at Gen. end	0.00%			
7	60MW KHP	Unit- I	15.04	132kV KHP - Nangkhoh Line	9.76	Unit-II under Annual Maintenance. Unit-III on Standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	19.30	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.00	
		Unit- IV	15.07	132kV Motanga - Rangia Line	4.49	
		Total	30.11	Auxiliary Consumption & Transformation Losses at Generator end	3.49%	

Note: Generation-Load Summary (MW) for February 01, 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	214.99	339.63	337.81	-69.17	1.82
2	Eastern Grid	247.07	100.87	97.52	90.73	3.35
Total		462.06	440.50	435.33	21.56	5.17

Note: Generation-Load Summary for February 01, 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	282.12	269.50	266.11	12.62	3.39
2	Eastern Grid	200.82	74.45	72.04	126.37	2.41
Total		482.94	343.95	338.15	138.99	5.80

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: February 2, 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	-60.40	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	84.77	400kV MHP - Jigmeling Line - I	214.49	Unit III 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	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	132.16	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)	98.27	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	41.45	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	67.79	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	16.47	
		-	-	80MVA, 220/132kV ICT - II (HV)	16.73	
		-	-	220kV Tsirang - Jigmeling Line	-49.02	
-	-	132kV Gelephu - Salakati Line	-5.84			
Total	216.93	Auxiliary Consumption & Transformation Losses at Generator end	1.12%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I on Standby. Unit-III under Annual Maintenance. 220kV CHP_Birpara Line I under Shutdown. 220kV CHP_Birpara Line II under Breakdown since 29.12.21.
		Unit- II	84.33	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	82.66	
		Unit- IV	84.10	220kV CHP - Semtokha Line- IV	62.62	
		-	-	220kV Malbase - Birpara Line	-26.92	
		-	-	66kV CHP - Chumdo Line	19.24	
		-	-	66kV CHP - Gedu Line	0.00	
		-	-	3x3MVA, 66/11kV TFR	1.63	
Total	168.43	Auxiliary Consumption & Transformation Losses at Generator end	1.35%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	66.10	U/S and L/S Unit-I under maintenance.
		Unit- II	7.10	66kV BHP - Lobeyssa Line	25.34	
		Total	7.10	220kV BHP - Tsirang Line	-70.89	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.72	
		Unit- II	14.00	30MVA ICT, 220/66kV (HV)	19.15	
		Total	14.00	Auxiliary Consumption & Transformation Losses at Generator end	-0.81%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	24.47	Unit-I under Annual Maintenance. 220kV DHP_Dagapela Line on standby.
		Unit-II	24.67	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	15.96	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	24.67	Auxiliary Consumption & Transformation Losses at Generator end	0.00%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	11.46	Unit-II under Annual Maintenance. Unit-I on Standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	17.45	
		Unit- III	15.07	5MVA, 132/11kV TFR	0.00	
		Unit- IV	15.07	132kV Motanga - Rangia Line	5.66	
		Total	30.14	Auxiliary Consumption & Transformation Losses at Generator end	4.08%	

Note: Generation-Load Summary (MW) for February 02, 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	214.20	350.54	348.43	-87.32	2.11
2	Eastern Grid	247.07	88.99	85.32	109.06	3.67
Total		461.27	439.53	433.75	21.74	5.78

Note: Generation-Load Summary for February 02, 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	286.43	175.73	171.76	110.70	3.97
2	Eastern Grid	116.68	57.73	56.71	58.95	1.02
Total		403.11	233.46	228.47	169.65	4.99

NOTE-BHP data 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.
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