

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: February 22, 2022
Hours: 18:00 Hours

Date: 12-Jan-22 **Time:** 18:00hrs **Load(MW):** 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	-44.94	
		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	248.52	Unit-I & II under Annual Maintenance. 400kV MHP-JLG Line II, III & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG-ALI I (Interim) under standby. 400kV JLG_ALI Line I & II (Direct) under Breakdown.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	150.59	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	99.79	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)	123.53	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	119.26	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	19.97	
		-	-	80MVA, 220/132kV ICT - II (HV)	20.30	
		-	-	220kV Tsirang - Jigmeling Line	-95.68	
-	-	132kV Gelephu - Salakati Line	-2.77			
Total	250.38	Auxiliary Consumption & Transformation Losses at Generator end	0.74%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	4.60	Unit-I Under maintenance Unit IV on Standby.
		Unit- II	83.77	220kV CHP - Birpara Line- II	4.67	
		Unit- III	84.46	220kV CHP - Malbase Line- III	80.52	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	52.82	
		-	-	220kV Malbase - Birpara Line	-54.72	
		-	-	66kV CHP - Chumdo Line	18.63	
		-	-	66kV CHP - Gedu Line	2.75	
		-	-	3x3MVA, 66/11kV TFR	1.74	
Total	168.23	Auxiliary Consumption & Transformation Losses at Generator end	1.49%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	84.60	U/S Unit-I under maintenance. L/S Unit-II on Standby.
		Unit- II	6.60	66kV BHP - Lobeyasa Line	26.31	
		Total	6.60	220kV BHP - Tsirang Line	-90.77	
5	40MW BHP (L/S)	Unit- I	13.70	5MVA, 66/11kV TFR	0.76	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	20.45	
		Total	13.70	Auxiliary Consumption & Transformation Losses at Generator end	-2.96%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	0.00	Unit-I under Annual Maintenance. 220kV DHP_Tsirang Line on Standby.
		Unit-II	23.46	220kV DHP - Dagapela Line	23.13	
		-	-	220kV Jigmeling - Dagapela Line	-13.83	
		-	-	5MVA, 220/33kV TFR	0.33	
Total	23.46	Auxiliary Consumption & Transformation Losses at Gen. end	0.00%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	7.53	Unit-I under AMP. Unit-IV on Standby.
		Unit-II	12.56	132kV KHP - Kilikhar Line	16.53	
		Unit- III	12.50	5MVA, 132/11kV TFR	0.70	
		Unit- IV	0.00	132kV Motanga - Rangia Line	0.00	
		Total	25.06	Auxiliary Consumption & Transformation Losses at Generator end	1.20%	

Note: Generation-Load Summary (MW) for February 22, 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	211.99	398.06	396.16	-90.39	1.90
2	Eastern Grid	275.44	63.27	61.11	116.49	2.16
Total		487.43	461.33	457.27	26.10	4.06

Note: Generation-Load Summary for February 22, 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	252.53	214.90	212.37	25.60	2.53
2	Eastern Grid	140.17	63.00	62.49	89.20	0.51
Total		392.70	277.90	274.86	114.80	3.04

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.
- 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 23, 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	-49.18	
		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	209.52	Unit-I & II under Annual Maintenance. 400kV MHP-JLG Line II, III & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG-ALI I (Interim) under standby. 400kV JLG_ALI Line I & II (Direct) under Breakdown.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	88.22	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	122.06	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)	110.04	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	95.26	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	21.85	
		-	-	80MVA, 220/132kV ICT - II (HV)	22.19	
		-	-	220kV Tsirang - Jigmeling Line	-81.18	
-	-	132kV Gelephu - Salakati Line	-3.43			
Total	210.28	Auxiliary Consumption & Transformation Losses at Generator end	0.36%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	10.29	Unit-IV on Standby. Unit-I under Annual Maintenance.
		Unit- II	87.42	220kV CHP - Birpara Line- II	10.38	
		Unit- III	79.97	220kV CHP - Malbase Line- III	76.19	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	48.71	
		-	-	220kV Malbase - Birpara Line	-40.90	
		-	-	66kV CHP - Chumdo Line	15.71	
		-	-	66kV CHP - Gedu Line	2.85	
		-	-	3x3MVA, 66/11kV TFR	1.47	
Total	167.39	Auxiliary Consumption & Transformation Losses at Generator end	1.07%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	70.80	U/S Unit-I under Annual maintenance. L/S Unit-II on Standby.
		Unit- II	6.80	66kV BHP - Lobeysa Line	23.50	
		Total	6.80	220kV BHP - Tsirang Line	-77.52	
5	40MW BHP (L/S)	Unit- I	10.10	5MVA, 66/11kV TFR	0.55	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	17.36	
		Total	10.10	Auxiliary Consumption & Transformation Losses at Generator end	-2.54%	
6	126MW DHP	Unit-I	24.70	220kV DHP - Tsirang Line	0.00	Unit-II on Standby. 220kV DHP_Tsirang Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	24.48	
		-	-	220kV Jigmeling - Dagapela Line	-15.42	
		-	-	5MVA, 220/33kV TFR	0.21	
Total	24.70	Auxiliary Consumption & Transformation Losses at Generator end	0.04%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	9.71	Unit-I under AMP. Unit-IV on Standby.
		Unit-II	13.04	132kV KHP - Kilikhar Line	15.37	
		Unit- III	13.10	5MVA, 132/11kV TFR	0.61	
		Unit- IV	0.00	132kV Motanga - Rangia Line	4.59	
		Total	26.14	Auxiliary Consumption & Transformation Losses at Generator end	1.72%	

Note: Generation-Load Summary (MW) for February 23, 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	208.99	359.58	358.21	-69.41	1.37
2	Eastern Grid	236.42	58.82	57.61	96.42	1.21
Total		445.41	418.40	415.82	27.01	2.58

Note: Generation-Load Summary for February 23, 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	253.75	195.37	192.68	45.48	2.69
2	Eastern Grid	136.18	56.29	55.39	92.79	0.90
Total		389.93	251.66	248.07	138.27	3.59

NOTE-BHP data collected from Site.

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