

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: February 21, 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	-44.58	
		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	233.26	Unit-I & 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 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	125.48	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	110.09	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)	120.97	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	107.63	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	20.56	
		-	-	80MVA, 220/132kV ICT - II (HV)	20.89	
		-	-	220kV Tsirang - Jigmeling Line	-92.52	
-	-	132kV Gelephu - Salakati Line	-3.81			
Total	235.57	Auxiliary Consumption & Transformation Losses at Generator end	0.98%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	5.01	Unit-I Under maintenance Unit IV on Standby.
		Unit- II	90.70	220kV CHP - Birpara Line- II	4.98	
		Unit- III	84.04	220kV CHP - Malbase Line- III	75.57	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	62.01	
		-	-	220kV Malbase - Birpara Line	-49.59	
		-	-	66kV CHP - Chumdo Line	19.90	
		-	-	66kV CHP - Gedu Line	2.16	
		-	-	3x3MVA, 66/11kV TFR	1.73	
Total	174.74	Auxiliary Consumption & Transformation Losses at Generator end	1.93%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	78.10	U/S Unit-I under maintenance. L/S Unit-II on Standby.
		Unit- II	6.80	66kV BHP - Lobeyssa Line	26.29	
		Total	6.80	220kV BHP - Tsirang Line	-87.66	
5	40MW BHP (L/S)	Unit- I	10.10	5MVA, 66/11kV TFR	0.76	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	20.26	
		Total	10.10	Auxiliary Consumption & Transformation Losses at Generator end	-3.49%	
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	24.77	220kV DHP - Dagapela Line	24.57	
		-	-	220kV Jigmeling - Dagapela Line	-14.92	
		-	-	5MVA, 220/33kV TFR	0.18	
Total	24.77	Auxiliary Consumption & Transformation Losses at Gen. end	0.08%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	10.74	Unit-I under AMP. Unit-IV on Standby.
		Unit-II	15.06	132kV KHP - Kilikhar Line	18.25	
		Unit- III	15.09	5MVA, 132/11kV TFR	0.79	
		Unit- IV	0.00	132kV Motanga - Rangia Line	8.83	
		Total	30.15	Auxiliary Consumption & Transformation Losses at Generator end	1.23%	

Note: Generation-Load Summary (MW) for February 21, 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	216.41	393.11	390.30	-84.18	2.81
2	Eastern Grid	265.72	60.55	57.87	112.65	2.68
Total		482.13	453.66	448.17	28.47	5.49

Note: Generation-Load Summary for February 21, 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	247.85	197.17	192.75	40.02	4.42
2	Eastern Grid	110.63	61.37	61.04	59.92	0.33
Total		358.48	258.54	253.79	99.94	4.75

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.
 - The clocks of all the locations are not synchronized.
- 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 22, 2022
Hours: 09:00 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	-52.68	
		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	221.20	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	137.39	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	85.00	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)	109.29	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	107.63	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	20.74	
		-	-	80MVA, 220/132kV ICT - II (HV)	21.06	
		-	-	220kV Tsirang - Jigmeling Line	-83.08	
-	-	132kV Gelephu - Salakati Line	-0.32			
Total	222.39	Auxiliary Consumption & Transformation Losses at Generator end	0.54%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	8.70	Unit-IV on Standby. Unit-I under Annual Maintenance.
		Unit- II	80.86	220kV CHP - Birpara Line- II	9.00	
		Unit- III	78.62	220kV CHP - Malbase Line- III	73.10	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	46.69	
		-	-	220kV Malbase - Birpara Line	-41.56	
		-	-	66kV CHP - Chumdo Line	17.13	
		-	-	66kV CHP - Gedu Line	2.04	
		-	-	3x3MVA, 66/11kV TFR	1.45	
Total	159.48	Auxiliary Consumption & Transformation Losses at Generator end	0.86%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	81.10	U/S Unit-I under Annual maintenance. L/S Unit-II on Standby.
		Unit- II	6.70	66kV BHP - Lobeysa Line	24.31	
		Total	6.70	220kV BHP - Tsirang Line	-78.95	
5	40MW BHP (L/S)	Unit- I	20.00	5MVA, 66/11kV TFR	0.53	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	18.33	
		Total	20.00	Auxiliary Consumption & Transformation Losses at Generator end	-1.09%	
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	24.97	220kV DHP - Dagapela Line	24.75	
		-	-	220kV Jigmeling - Dagapela Line	-14.98	
		-	-	5MVA, 220/33kV TFR	0.21	
Total	24.97	Auxiliary Consumption & Transformation Losses at Generator end	0.04%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	5.45	Unit-I under AMP. Unit-IV on Standby.
		Unit-II	10.03	132kV KHP - Kilikhar Line	13.75	
		Unit- III	10.08	5MVA, 132/11kV TFR	0.59	
		Unit- IV	0.00	132kV Motanga - Rangia Line	2.74	
		Total	20.11	Auxiliary Consumption & Transformation Losses at Generator end	1.59%	

Note: Generation-Load Summary (MW) for February 22, 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	211.15	370.77	369.68	-76.54	1.09
2	Eastern Grid	242.50	49.37	47.86	110.05	1.51
Total		453.65	420.14	417.54	33.51	2.60

Note: Generation-Load Summary for February 22, 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	242.78	179.69	177.80	48.57	1.89
2	Eastern Grid	113.10	51.74	51.99	75.88	-0.25
Total		355.88	231.43	229.79	124.45	1.64

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.