

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: February 24, 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	-50.34	
		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	239.30	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	135.26	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	105.01	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)	121.90	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	112.72	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	22.00	
		-	-	80MVA, 220/132kV ICT - II (HV)	22.36	
		-	-	220kV Tsirang - Jigmeling Line	-91.44	
-	-	132kV Gelephu - Salakati Line	-3.75			
Total	240.27	Auxiliary Consumption & Transformation Losses at Generator end	0.40%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	5.27	Unit-I Under maintenance Unit III on Standby.
		Unit- II	82.47	220kV CHP - Birpara Line- II	5.31	
		Unit- III	0.00	220kV CHP - Malbase Line- III	68.52	
		Unit- IV	82.17	220kV CHP - Semtokha Line- IV	59.06	
		-	-	220kV Malbase - Birpara Line	-44.03	
		-	-	66kV CHP - Chumdo Line	19.46	
		-	-	66kV CHP - Gedu Line	2.43	
		-	-	3x3MVA, 66/11kV TFR	1.83	
Total	164.64	Auxiliary Consumption & Transformation Losses at Generator end	1.68%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	81.20	U/S Unit-I under maintenance. L/S Unit-II on Standby.
		Unit- II	6.70	66kV BHP - Lobeyasa Line	26.64	
		Total	6.70	220kV BHP - Tsirang Line	-87.42	
5	40MW BHP (L/S)	Unit- I	14.00	5MVA, 66/11kV TFR	0.71	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	20.80	
		Total	14.00	Auxiliary Consumption & Transformation Losses at Generator end	-2.08%	
6	126MW DHP	Unit-I	23.69	220kV DHP - Tsirang Line	0.00	Unit-II under Annual Maintenance. 220kV DHP_Tsirang Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	23.47	
		-	-	220kV Jigmeling - Dagapela Line	-13.99	
		-	-	5MVA, 220/33kV TFR	0.22	
Total	23.69	Auxiliary Consumption & Transformation Losses at Gen. end	0.00%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	4.52	Unit-I under AMP. Unit-IV on Standby.
		Unit-II	10.03	132kV KHP - Kilikhar Line	14.54	
		Unit- III	10.04	5MVA, 132/11kV TFR	0.00	
		Unit- IV	0.00	132kV Motanga - Rangia Line	-4.07	
		Total	20.07	Auxiliary Consumption & Transformation Losses at Generator end	5.03%	

Note: Generation-Load Summary (MW) for February 24, 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	209.03	384.26	381.93	-83.79	2.33
2	Eastern Grid	260.34	64.00	62.02	104.90	1.98
Total		469.37	448.26	443.95	21.11	4.31

Note: Generation-Load Summary for February 24, 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	258.79	235.34	232.87	10.94	2.47
2	Eastern Grid	110.58	65.18	64.39	57.91	0.79
Total		369.37	300.52	297.26	68.85	3.26

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 25, 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	-34.99	
		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	187.11	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 II (Interim) tripped. 400kV JLG_ALI Line I & II (Direct) under Breakdown.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	93.87	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	94.14	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)	181.48	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	36.46	
		-	-	80MVA, 220/132kV ICT - II (HV)	36.99	
		-	-	220kV Tsirang - Jigmeling Line	-123.46	
-	-	132kV Gelephu - Salakati Line	19.74			
Total	188.01	Auxiliary Consumption & Transformation Losses at Generator end	0.48%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	27.39	Unit-III under shutdown.. Unit-I under Annual Maintenance.
		Unit- II	84.64	220kV CHP - Birpara Line- II	27.47	
		Unit- III	0.00	220kV CHP - Malbase Line- III	93.60	
		Unit- IV	82.91	220kV CHP - Semtokha Line- IV	-0.57	
		-	-	220kV Malbase - Birpara Line	-26.00	
		-	-	66kV CHP - Chumdo Line	13.58	
		-	-	66kV CHP - Gedu Line	3.89	
		-	-	3x3MVA, 66/11kV TFR	1.59	
		Total	167.55	Auxiliary Consumption & Transformation Losses at Generator end	0.36%	
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	120.00	U/S Unit-I under Annual maintenance. L/S Unit-II on Standby.
		Unit- II	6.70	66kV BHP - Lobeysa Line	24.81	
		Total	6.70	220kV BHP - Tsirang Line	-118.63	
5	40MW BHP (L/S)	Unit- I	20.00	5MVA, 66/11kV TFR	0.52	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	18.76	
		Total	20.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
6	126MW DHP	Unit-I	24.50	220kV DHP - Tsirang Line	0.00	Unit-II on Standby. 220kV DHP_Tsirang Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	24.29	
		-	-	220kV Jigmeling - Dagapela Line	-15.24	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	24.50	Auxiliary Consumption & Transformation Losses at Generator end	0.04%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	8.01	Unit-I under AMP. Unit-IV on Standby.
		Unit-II	13.02	132kV KHP - Kilikhar Line	17.05	
		Unit- III	13.08	5MVA, 132/11kV TFR	0.70	
		Unit- IV	0.00	132kV Motanga - Rangia Line	15.54	
		Total	26.10	Auxiliary Consumption & Transformation Losses at Generator end	1.30%	

Note: Generation-Load Summary (MW) for February 25, 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	218.75	348.34	347.73	-6.13	0.61
2	Eastern Grid	214.11	55.37	54.13	35.28	1.24
Total		432.86	403.71	401.86	29.15	1.85

Note: Generation-Load Summary for February 25, 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	260.45	222.58	219.77	23.93	2.81
2	Eastern Grid	106.23	49.31	48.87	70.86	0.44
Total		366.68	271.89	268.64	94.79	3.25

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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