

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: January 18, 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	-51.53	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	84.84	400kV MHP - Jigmeling Line - I	216.70	Unit-IV & II on Standby. 400kV MHP-JLG Line II, III & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) under Shutdown. 400kV JLG_ALI Line I (Direct) on Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	133.62	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	0.00	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)	110.15	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	41.09	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	62.79	
		-	-	80MVA, 220/132kV ICT - I (HV)	19.66	
		-	-	80MVA, 220/132kV ICT - II (HV)	19.95	
		-	-	220kV Tsirang - Jigmeling Line	-54.38	
-	-	132kV Gelephu - Salakati Line	-12.77			
Total	218.46	Auxiliary Consumption & Transformation Losses at Generator end	0.81%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	10.07	Unit-I on Standby. Unit-III under Annual Maintenance 220kV CHP_Birpara Line II under Breakdown since 29.12.21. 220kV CHP_Birpara Line I closed at 16:34hrs (18.01.2022).
		Unit- II	86.01	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	61.33	
		Unit- IV	87.49	220kV CHP - Semtokha Line- IV	75.44	
		-	-	220kV Malbase - Birpara Line	-31.54	
		-	-	66kV CHP - Chumdo Line	21.90	
		-	-	66kV CHP - Gedu Line	2.15	
		-	-	3x3MVA, 66/11kV TFR	1.81	
Total	173.50	Auxiliary Consumption & Transformation Losses at Generator end	0.46%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	70.40	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	7.70	66kV BHP - Lobeyasa Line	28.45	
		Total	7.70	220kV BHP - Tsirang Line	-74.64	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.98	
		Unit- II	17.30	30MVA ICT, 220/66kV (HV)	21.91	
		Total	17.30	Auxiliary Consumption & Transformation Losses at Generator end	-0.76%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	25.06	Unit-I under Annual Maintenance. 220kV DHP-Dagapela Line on standby.
		Unit-II	25.29	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	16.49	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	25.29	Auxiliary Consumption & Transformation Losses at Gen. end	0.12%			
7	60MW KHP	Unit- I	16.07	132kV KHP - Nangkhoh Line	12.58	Unit-II & III on standby
		Unit-II	0.00	132kV KHP - Kilikhar Line	18.59	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.70	
		Unit- IV	16.14	132kV Motanga - Rangia Line	1.37	
		Total	32.21	Auxiliary Consumption & Transformation Losses at Generator end	1.06%	

Note: Generation-Load Summary (MW) for January 18, 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	223.79	351.17	350.53	-73.00	0.64
2	Eastern Grid	250.67	103.81	101.71	92.48	2.10
Total		474.46	454.98	452.24	19.48	2.74

Note: Generation-Load Summary for January 18, 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	314.22	255.66	252.29	39.90	3.37
2	Eastern Grid	129.17	73.54	72.47	74.29	1.07
Total		443.39	329.20	324.76	114.19	4.44

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 19, 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	-50.46	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	84.80	400kV MHP - Jigmeling Line - I	195.25	Unit-II & IV on Standby. 400kV MHP-JLG Line II, III & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) under Shutdown. 400kV JLG_ALI Line I (Direct) on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	111.33	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	0.00	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)	87.24	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	41.55	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	63.97	
		-	-	80MVA, 220/132kV ICT - I (HV)	17.14	
		-	-	80MVA, 220/132kV ICT - II (HV)	17.39	
		-	-	220kV Tsirang - Jigmeling Line	-39.18	
-	-	132kV Gelephu - Salakati Line	-5.72			
Total	196.13	Auxiliary Consumption & Transformation Losses at Generator end	0.45%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	14.31	Unit-I on Standby. Unit-III under Annual Maintenance. 220kV CHP_Birpara Line-I & II under breakdown..
		Unit- II	83.53	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	73.96	
		Unit- IV	85.13	220kV CHP - Semtokha Line- IV	58.82	
		-	-	220kV Malbase - Birpara Line	-33.56	
		-	-	66kV CHP - Chumdo Line	16.66	
		-	-	66kV CHP - Gedu Line	2.36	
		-	-	3x3MVA, 66/11kV TFR	1.47	
Total	168.66	Auxiliary Consumption & Transformation Losses at Generator end	0.64%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	57.50	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	7.40	66kV BHP - Lobeyasa Line	23.53	
		Total	7.40	220kV BHP - Tsirang Line	-59.29	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.66	
		Unit- II	14.80	30MVA ICT, 220/66kV (HV)	16.85	
		Total	14.80	Auxiliary Consumption & Transformation Losses at Generator end	-0.90%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	24.76	Unit-I under Annual Maintenance. 220kV DHP_Dagapela Line on standby.
		Unit-II	24.97	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	15.43	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	24.97	Auxiliary Consumption & Transformation Losses at Generator end	0.04%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	13.32	Unit III on standby.
		Unit-II	15.09	132kV KHP - Kilikhar Line	15.97	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.59	
		Unit- IV	15.11	132kV Motanga - Rangia Line	2.84	
		Total	30.20	Auxiliary Consumption & Transformation Losses at Generator end	1.06%	

Note: Generation-Load Summary (MW) for January 19, 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	215.83	324.72	323.83	-69.71	0.89
2	Eastern Grid	226.33	84.51	83.31	102.64	1.20
Total		442.16	409.23	407.14	32.93	2.09

Note: Generation-Load Summary for January 19, 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	316.55	233.74	229.12	62.82	4.62
2	Eastern Grid	137.24	58.78	57.62	98.45	1.16
Total		453.79	292.52	286.74	161.27	5.78

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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