

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: January 14, 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	-47.51	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	100.00	400kV MHP - Jigmeling Line - I	218.71	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	120.72	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)	108.12	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	41.43	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	64.26	
		-	-	80MVA, 220/132kV ICT - I (HV)	21.49	
		-	-	80MVA, 220/132kV ICT - II (HV)	21.73	
		-	-	220kV Tsirang - Jigmeling Line	-48.90	
-	-	132kV Gelephu - Salakati Line	-7.82			
Total	220.72	Auxiliary Consumption & Transformation Losses at Generator end	0.91%			
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 & II under breakdown.
		Unit- II	90.51	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	71.27	
		Unit- IV	91.79	220kV CHP - Semtokha Line- IV	83.43	
		-	-	220kV Malbase - Birpara Line	-21.70	
		-	-	66kV CHP - Chumdo Line	22.45	
		-	-	66kV CHP - Gedu Line	2.93	
		-	-	3x3MVA, 66/11kV TFR	1.93	
Total	182.30	Auxiliary Consumption & Transformation Losses at Generator end	0.16%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	63.30	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	8.20	66kV BHP - Lobeyasa Line	28.94	
		Total	8.20	220kV BHP - Tsirang Line	-68.30	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.91	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	16.40	30MVA ICT, 220/66kV (HV)	21.83	
		Total	16.40	Auxiliary Consumption & Transformation Losses at Generator end	-1.02%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	26.76	Unit-I under Annual Maintenance. 220kV DHP-Dagapela Line on standby.
		Unit-II	27.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	16.76	
		-	-	5MVA, 220/33kV TFR	0.24	
Total	27.00	Auxiliary Consumption & Transformation Losses at Gen. end	0.00%			
7	60MW KHP	Unit- I	15.09	132kV KHP - Nangkhoh Line	10.84	Unit-III on standby Unit-IV under Annual Maintenance.
		Unit-II	15.15	132kV KHP - Kilikhar Line	18.13	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.63	
		Unit- IV	0.00	132kV Motanga - Rangia Line	2.49	
		Total	30.24	Auxiliary Consumption & Transformation Losses at Generator end	2.12%	

Note: Generation-Load Summary (MW) for January 14, 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	233.90	352.01	351.97	-69.21	0.04
2	Eastern Grid	250.96	101.70	99.05	100.36	2.65
Total		484.86	453.71	451.02	31.15	2.69

Note: Generation-Load Summary for January 14, 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	332.77	256.60	251.91	63.68	4.69
2	Eastern Grid	139.43	66.70	64.91	85.22	1.79
Total		472.20	323.30	316.82	148.90	6.48

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 15, 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	-54.73	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	80.00	400kV MHP - Jigmeling Line - I	221.64	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	142.90	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)	93.84	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	48.91	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	75.21	
		-	-	80MVA, 220/132kV ICT - I (HV)	18.17	
		-	-	80MVA, 220/132kV ICT - II (HV)	18.49	
		-	-	220kV Tsirang - Jigmeling Line	-42.85	
-	-	132kV Gelephu - Salakati Line	-4.32			
Total	222.90	Auxiliary Consumption & Transformation Losses at Generator end	0.57%			
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 & II under breakdown..
		Unit- II	83.43	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	78.65	
		Unit- IV	83.88	220kV CHP - Semtokha Line- IV	64.77	
		-	-	220kV Malbase - Birpara Line	-35.12	
		-	-	66kV CHP - Chumdo Line	18.28	
		-	-	66kV CHP - Gedu Line	3.51	
		-	-	3x3MVA, 66/11kV TFR	1.52	
Total	167.31	Auxiliary Consumption & Transformation Losses at Generator end	0.35%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	65.10	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	8.00	66kV BHP - Lobeyasa Line	26.48	
		Total	8.00	220kV BHP - Tsirang Line	-67.76	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.62	
		Unit- II	16.30	30MVA ICT, 220/66kV (HV)	19.30	
		Total	16.30	Auxiliary Consumption & Transformation Losses at Generator end	-0.58%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	27.75	Unit-I under Annual Maintenance. 220kV DHP_Dagapela Line on standby.
		Unit-II	27.97	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	15.70	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	27.97	Auxiliary Consumption & Transformation Losses at Generator end	0.07%			
7	60MW KHP	Unit- I	16.07	132kV KHP - Nangkhoh Line	15.64	Unit III on standby. Unit-IV under Annual Maintenance.
		Unit-II	16.05	132kV KHP - Kilikhar Line	15.57	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.50	
		Unit- IV	0.00	132kV Motanga - Rangia Line	0.00	
		Total	32.12	Auxiliary Consumption & Transformation Losses at Generator end	1.28%	

Note: Generation-Load Summary (MW) for January 15, 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	219.58	352.28	351.82	-89.85	0.46
2	Eastern Grid	255.02	92.37	90.70	119.80	1.67
Total		474.60	444.65	442.52	29.95	2.13

Note: Generation-Load Summary for January 15, 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	333.08	244.42	240.21	78.25	4.21
2	Eastern Grid	136.54	56.37	56.13	90.56	0.24
Total		469.62	300.79	296.34	168.81	4.45

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:

- 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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