

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	June 27, 2022
Hours:	19:00 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	186.22	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I & II under breakdown.
		Unit- II	176.88	400kV THP - Siliguri Line - II	0.00	
		Unit- III	166.78	400kV THP - Siliguri Line- IV	444.55	
		Unit- IV	99.06	400kV THP - Malbase Line - III	436.08	
		Unit- V	78.31	400kV Malbase - Siliguri Line	441.29	
		Unit- VI	179.78	-	-	
		Total	887.03	Auxiliary Consumption & Transformation Losses at Generator end	0.72%	
2	720MW MHP	Unit-I	197.80	400kV MHP - Jigmeling Line - I	294.40	Unit III under shutdown. 400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby
		Unit-II	197.90	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.90	
		Unit-IV	197.60	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)	37.70	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	136.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	203.90	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	204.60	
		-	-	80MVA, 220/132kV ICT - I (HV)	39.20	
		-	-	80MVA, 220/132kV ICT - II (HV)	39.90	
		-	-	220kV Tsirang - Jigmeling Line	78.00	
-	-	132kV Gelephu - Salakati Line	16.00			
Total	593.30	Auxiliary Consumption & Transformation Losses at Generator end	0.51%			
3	336MW CHP	Unit- I	91.16	220kV CHP - Birpara Line- I	75.33	
		Unit- II	91.28	220kV CHP - Birpara Line- II	75.31	
		Unit- III	91.32	220kV CHP - Malbase Line- III	152.08	
		Unit- IV	91.47	220kV CHP - Semtokha Line- IV	42.52	
		-	-	220kV Malbase - Birpara Line	4.79	
		-	-	66kV CHP - Chumdo Line	13.29	
		-	-	66kV CHP - Gedu Line	5.19	
		-	-	3x3MVA, 66/11kV TFR	1.60	
Total	365.23	Auxiliary Consumption & Transformation Losses at Generator end	-0.02%			
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	56.96	
		Unit- II	12.10	66kV BHP - Lobeyasa Line	25.80	
		Total	24.40	220kV BHP - Tsirang Line	-17.71	
5	40MW BHP (L/S)	Unit- I	20.60	5MVA, 66/11kV TFR	0.56	
		Unit- II	21.20	30MVA ICT, 220/66kV (HV)	2.62	
		Total	41.80	Auxiliary Consumption & Transformation Losses at Generator end	0.89%	
6	126MW DHP	Unit-I	50.41	220kV DHP - Tsirang Line	99.88	220kV DHP_Dagapela Line on Standby.
		Unit-II	50.03	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	35.80	
		-	-	5MVA, 220/33kV TFR	0.40	
Total	100.44	Auxiliary Consumption & Transformation Losses at Gen. end	0.16%			
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhoh Line	38.70	
		Unit-II	16.60	132kV KHP - Kilikhar Line	26.40	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.39	
		Unit- IV	16.70	132kV Motanga - Rangia Line	36.40	
		Total	66.30	Auxiliary Consumption & Transformation Losses at Generator end	1.22%	

Note: Generation-Load Summary (MW) for June 27, 2022 at 19:00hrs.

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	1,418.90	299.63	292.57	1,041.27	7.06
2	Eastern Grid	659.60	140.70	136.89	596.90	3.81
Total		2,078.50	440.33	429.46	1,638.17	10.87

Note: Generation-Load Summary for June 27, 2021 at 19:00hrs.

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	1,333.92	264.26	258.87	1,005.36	5.39
2	Eastern Grid	633.70	73.02	70.26	624.98	2.76
Total		1,967.62	337.28	329.13	1,630.34	8.15

NOTE-BHP Generation 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:	June 28, 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	186.26	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I & II under breakdown.
		Unit- II	177.20	400kV THP - Siliguri Line - II	0.00	
		Unit- III	167.28	400kV THP - Siliguri Line- IV	521.80	
		Unit- IV	148.26	400kV THP - Malbase Line - III	513.20	
		Unit- V	184.41	400kV Malbase - Siliguri Line	515.65	
		Unit- VI	179.39	-	-	
		Total	1,042.80	Auxiliary Consumption & Transformation Losses at Generator end	0.75%	
2	720MW MHP	Unit-I	197.86	400kV MHP - Jigmeling Line - I	293.87	Unit III under shutdown. 400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby
		Unit-II	197.82	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.65	
		Unit-IV	197.62	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)	15.60	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	141.30	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	210.40	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	211.50	
		-	-	80MVA, 220/132kV ICT - I (HV)	30.50	
		-	-	80MVA, 220/132kV ICT - II (HV)	30.90	
		-	-	220kV Tsirang - Jigmeling Line	81.70	
-	-	132kV Gelephu - Salakati Line	18.10			
Total	593.30	Auxiliary Consumption & Transformation Losses at Generator end	0.64%			
3	336MW CHP	Unit- I	91.00	220kV CHP - Birpara Line- I	75.24	
		Unit- II	90.97	220kV CHP - Birpara Line- II	75.32	
		Unit- III	90.84	220kV CHP - Malbase Line- III	151.45	
		Unit- IV	90.99	220kV CHP - Semtokha Line- IV	43.03	
		-	-	220kV Malbase - Birpara Line	5.29	
		-	-	66kV CHP - Chumdo Line	11.49	
		-	-	66kV CHP - Gedu Line	5.54	
		-	-	3x3MVA, 66/11kV TFR	0.89	
Total	363.80	Auxiliary Consumption & Transformation Losses at Generator end	0.23%			
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	49.01	
		Unit- II	12.10	66kV BHP - Lobeysa Line	24.22	
		Total	24.40	220kV BHP - Tsirang Line	-8.05	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.38	
		Unit- II	21.20	30MVA ICT, 220/66kV (HV)	0.79	
		Total	41.70	Auxiliary Consumption & Transformation Losses at Generator end	0.82%	
6	126MW DHP	Unit-I	48.40	220kV DHP - Tsirang Line	95.92	220kV DHP_Dagapela Line on Standby.
		Unit-II	47.99	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	35.40	
		-	-	5MVA, 220/33kV TFR	0.30	
Total	96.39	Auxiliary Consumption & Transformation Losses at Generator end	0.18%			
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhoh Line	42.50	
		Unit-II	16.50	132kV KHP - Kilikhar Line	22.80	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.40	
		Unit- IV	16.50	132kV Motanga - Rangia Line	28.40	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Generator end	0.45%	

Note: Generation-Load Summary (MW) for June 28, 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	1,569.09	294.09	284.74	1,193.30	9.35
2	Eastern Grid	659.30	131.30	127.22	609.70	4.08
Total		2,228.39	425.39	411.96	1,803.00	13.43

Note: Generation-Load Summary for June 28, 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	1,253.50	255.70	250.66	922.50	5.04
2	Eastern Grid	614.28	58.46	54.80	631.12	3.66
Total		1,867.78	314.16	305.46	1,553.62	8.70

NOTE-BHP Generation 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.