

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	June 25, 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	186.24	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I & II under breakdown.
		Unit- II	156.21	400kV THP - Siliguri Line - II	0.00	
		Unit- III	166.98	400kV THP - Siliguri Line- IV	442.98	
		Unit- IV	128.54	400kV THP - Malbase Line - III	437.60	
		Unit- V	168.93	400kV Malbase - Siliguri Line	441.09	
		Unit- VI	80.25	-	-	
		Total	887.15	Auxiliary Consumption & Transformation Losses at Generator end	0.74%	
2	720MW MHP	Unit-I	197.87	400kV MHP - Jigmeling Line - I	293.97	Unit III under shutdown. 400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby
		Unit-II	197.83	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.75	
		Unit-IV	197.65	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)	66.22	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	128.89	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	193.79	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	193.05	
		-	-	80MVA, 220/132kV ICT - I (HV)	37.03	
		-	-	80MVA, 220/132kV ICT - II (HV)	37.73	
		-	-	220kV Tsirang - Jigmeling Line	45.16	
-	-	132kV Gelephu - Salakati Line	13.60			
Total	593.35	Auxiliary Consumption & Transformation Losses at Generator end	0.61%			
3	336MW CHP	Unit- I	91.66	220kV CHP - Birpara Line- I	66.74	
		Unit- II	90.80	220kV CHP - Birpara Line- II	67.59	
		Unit- III	92.17	220kV CHP - Malbase Line- III	148.08	
		Unit- IV	92.10	220kV CHP - Semtokha Line- IV	62.74	
		-	-	220kV Malbase - Birpara Line	-4.73	
		-	-	66kV CHP - Chumdo Line	14.15	
		-	-	66kV CHP - Gedu Line	4.82	
		-	-	3x3MVA, 66/11kV TFR	1.21	
Total	366.73	Auxiliary Consumption & Transformation Losses at Generator end	0.38%			
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	35.50	
		Unit- II	12.10	66kV BHP - Lobeyasa Line	25.20	
		Total	24.40	220kV BHP - Tsirang Line	-37.22	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.54	At 18:35hrs, Lower Stage Unit-I & II tripped.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	1.90	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	1.56%	
6	126MW DHP	Unit-I	42.90	220kV DHP - Tsirang Line	85.36	220kV DHP_Dagapela Line on Standby.
		Unit-II	42.97	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	35.84	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	85.87	Auxiliary Consumption & Transformation Losses at Gen. end	0.36%			
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhoh Line	39.38	
		Unit-II	16.50	132kV KHP - Kilikhar Line	25.62	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.49	
		Unit- IV	16.50	132kV Motanga - Rangia Line	32.37	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Generator end	0.77%	

Note: Generation-Load Summary (MW) for June 25, 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	1,364.15	305.32	296.66	1,013.67	8.66
2	Eastern Grid	659.35	142.81	138.67	561.70	4.14
Total		2,023.50	448.13	435.33	1,575.37	12.80

Note: Generation-Load Summary for June 25, 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	1,271.46	243.80	238.02	957.88	5.78
2	Eastern Grid	428.14	62.70	59.79	435.22	2.91
Total		1,699.60	306.50	297.81	1,393.10	8.69

NOTE-BHP Generation 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:	June 26, 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	186.00	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I & II under breakdown.
		Unit- II	136.97	400kV THP - Siliguri Line - II	0.00	
		Unit- III	167.78	400kV THP - Siliguri Line- IV	469.16	
		Unit- IV	139.15	400kV THP - Malbase Line - III	462.38	
		Unit- V	169.43	400kV Malbase - Siliguri Line	465.22	
		Unit- VI	139.59	-	-	
		Total	938.92	Auxiliary Consumption & Transformation Losses at Generator end	0.79%	
2	720MW MHP	Unit-I	197.83	400kV MHP - Jigmeling Line - I	294.37	Unit III under shutdown. 400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby
		Unit-II	197.98	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	296.02	
		Unit-IV	197.77	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)	5.70	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	143.90	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	215.30	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	215.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	30.30	
		-	-	80MVA, 220/132kV ICT - II (HV)	30.90	
		-	-	220kV Tsirang - Jigmeling Line	91.90	
-	-	132kV Gelephu - Salakati Line	12.70			
Total	593.58	Auxiliary Consumption & Transformation Losses at Generator end	0.54%			
3	336MW CHP	Unit- I	91.05	220kV CHP - Birpara Line- I	78.58	
		Unit- II	91.12	220kV CHP - Birpara Line- II	78.46	
		Unit- III	90.23	220kV CHP - Malbase Line- III	148.03	
		Unit- IV	91.08	220kV CHP - Semtokha Line- IV	39.28	
		-	-	220kV Malbase - Birpara Line	12.86	
		-	-	66kV CHP - Chumdo Line	12.41	
		-	-	66kV CHP - Gedu Line	4.66	
		-	-	3x3MVA, 66/11kV TFR	1.17	
Total	363.48	Auxiliary Consumption & Transformation Losses at Generator end	0.24%			
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	55.84	
		Unit- II	12.10	66kV BHP - Lobeysa Line	24.83	
		Total	24.40	220kV BHP - Tsirang Line	-15.62	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.41	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	1.44	
		Total	41.60	Auxiliary Consumption & Transformation Losses at Generator end	0.82%	
6	126MW DHP	Unit-I	55.44	220kV DHP - Tsirang Line	109.78	220kV DHP_Dagapela Line on Standby.
		Unit-II	54.99	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	35.20	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	110.43	Auxiliary Consumption & Transformation Losses at Generator end	0.41%			
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhoh Line	42.50	
		Unit-II	16.70	132kV KHP - Kilikhar Line	22.70	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.40	
		Unit- IV	16.50	132kV Motanga - Rangia Line	30.30	
		Total	66.20	Auxiliary Consumption & Transformation Losses at Generator end	0.91%	

Note: Generation-Load Summary (MW) for June 26, 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	1,478.83	282.65	273.39	1,104.28	9.26
2	Eastern Grid	659.78	134.48	130.69	617.20	3.79
Total		2,138.61	417.13	404.08	1,721.48	13.05

Note: Generation-Load Summary for June 26, 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	1,525.68	259.41	256.44	1,193.27	2.97
2	Eastern Grid	643.10	61.57	57.87	654.33	3.70
Total		2,168.78	320.98	314.31	1,847.60	6.67

NOTE-MHPA & 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.