

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	July 1, 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	185.94	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I & II under breakdown.
		Unit- II	186.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	184.81	400kV THP - Siliguri Line- IV	558.21	
		Unit- IV	185.05	400kV THP - Malbase Line - III	548.75	
		Unit- V	185.52	400kV Malbase - Siliguri Line	550.62	
		Unit- VI	186.14	-	-	
		Total	1,113.46	Auxiliary Consumption & Transformation Losses at Generator end	0.58%	
2	720MW MHP	Unit-I	197.88	400kV MHP - Jigmeling Line - I	293.64	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	197.76	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.51	
		Unit-IV	197.66	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)	37.49	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	136.90	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	204.95	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	205.71	
		-	-	80MVA, 220/132kV ICT - I (HV)	41.36	
		-	-	80MVA, 220/132kV ICT - II (HV)	42.09	
		-	-	220kV Tsirang - Jigmeling Line	77.30	
-	-	132kV Gelephu - Salakati Line	18.49			
Total	593.30	Auxiliary Consumption & Transformation Losses at Generator end	0.70%			
3	336MW CHP	Unit- I	91.70	220kV CHP - Birpara Line- I	77.92	
		Unit- II	90.74	220kV CHP - Birpara Line- II	77.75	
		Unit- III	92.05	220kV CHP - Malbase Line- III	153.99	
		Unit- IV	91.93	220kV CHP - Semtokha Line- IV	34.03	
		-	-	220kV Malbase - Birpara Line	7.90	
		-	-	66kV CHP - Chumdo Line	16.72	
		-	-	66kV CHP - Gedu Line	4.27	
		-	-	3x3MVA, 66/11kV TFR	1.28	
Total	366.42	Auxiliary Consumption & Transformation Losses at Generator end	0.13%			
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	51.10	
		Unit- II	12.10	66kV BHP - Lobeyssa Line	24.77	
		Total	24.40	220kV BHP - Tsirang Line	-11.34	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.73	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	1.67	
		Total	41.60	Auxiliary Consumption & Transformation Losses at Generator end	1.12%	
6	126MW DHP	Unit-I	45.39	220kV DHP - Tsirang Line	89.92	220kV DHP_Dagapela Line on Standby.
		Unit-II	45.01	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	35.81	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	90.40	Auxiliary Consumption & Transformation Losses at Gen. end	0.31%			
7	60MW KHP	Unit- I	16.53	132kV KHP - Nangkhoh Line	38.72	
		Unit-II	16.63	132kV KHP - Kilikhar Line	26.22	
		Unit- III	16.63	5MVA, 132/11kV TFR	0.38	
		Unit- IV	16.57	132kV Motanga - Rangia Line	36.19	
		Total	66.36	Auxiliary Consumption & Transformation Losses at Generator end	1.57%	

Note: Generation-Load Summary (MW) for July 01, 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	1,636.28	286.58	278.60	1,272.40	7.98
2	Eastern Grid	659.66	134.72	129.53	602.24	5.19
Total		2,295.94	421.30	408.13	1,874.64	13.17

Note: Generation-Load Summary for July 01, 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	1,682.25	203.16	190.26	1,362.20	12.90
2	Eastern Grid	659.31	65.97	62.28	710.23	3.69
Total		2,341.56	269.13	252.54	2,072.43	16.59

NOTE-BHP Generation data collected from site and also 220kV JLG-TSI load.

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:	July 2, 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	183.78	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I & II under breakdown.
		Unit- II	185.35	400kV THP - Siliguri Line - II	0.00	
		Unit- III	184.81	400kV THP - Siliguri Line- IV	556.33	
		Unit- IV	185.52	400kV THP - Malbase Line - III	545.82	
		Unit- V	183.95	400kV Malbase - Siliguri Line	549.76	
		Unit- VI	184.83	-	-	
		Total	1,108.24	Auxiliary Consumption & Transformation Losses at Generator end	0.55%	
2	720MW MHP	Unit-I	197.95	400kV MHP - Jigmeling Line - I	293.75	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	197.94	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.86	
		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)	13.31	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	143.22	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	213.25	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	214.41	
		-	-	80MVA, 220/132kV ICT - I (HV)	31.33	
		-	-	80MVA, 220/132kV ICT - II (HV)	31.92	
		-	-	220kV Tsirang - Jigmeling Line	84.92	
-	-	132kV Gelephu - Salakati Line	13.46			
Total	593.66	Auxiliary Consumption & Transformation Losses at Generator end	0.68%			
3	336MW CHP	Unit- I	92.75	220kV CHP - Birpara Line- I	67.85	
		Unit- II	92.91	220kV CHP - Birpara Line- II	67.94	
		Unit- III	38.22	220kV CHP - Malbase Line- III	139.99	
		Unit- IV	91.73	220kV CHP - Semtokha Line- IV	22.62	
		-	-	220kV Malbase - Birpara Line	2.06	
		-	-	66kV CHP - Chumdo Line	10.98	
		-	-	66kV CHP - Gedu Line	5.01	
		-	-	3x3MVA, 66/11kV TFR	0.88	
Total	315.61	Auxiliary Consumption & Transformation Losses at Generator end	0.11%			
4	24MW BHP (U/S)	Unit- I	11.85	220kV BHP - Semtokha Line	69.84	
		Unit- II	11.85	66kV BHP - Lobeysa Line	24.70	
		Total	23.70	220kV BHP - Tsirang Line	-29.66	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.37	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	1.20	
		Total	41.60	Auxiliary Consumption & Transformation Losses at Generator end	0.08%	
6	126MW DHP	Unit-I	58.43	220kV DHP - Tsirang Line	117.81	220kV DHP_Dagapela Line on Standby.
		Unit-II	59.97	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	35.06	
		-	-	5MVA, 220/33kV TFR	0.40	
Total	118.40	Auxiliary Consumption & Transformation Losses at Generator end	0.16%			
7	60MW KHP	Unit- I	16.03	132kV KHP - Nangkhoh Line	40.31	
		Unit-II	16.51	132kV KHP - Kilikhar Line	24.13	
		Unit- III	16.41	5MVA, 132/11kV TFR	0.36	
		Unit- IV	16.53	132kV Motanga - Rangia Line	35.31	
		Total	65.48	Auxiliary Consumption & Transformation Losses at Generator end	1.04%	

Note: Generation-Load Summary (MW) for July 02, 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	1,607.55	278.69	272.02	1,243.94	6.67
2	Eastern Grid	659.14	124.41	119.68	619.65	4.73
Total		2,266.69	403.10	391.70	1,863.59	11.40

Note: Generation-Load Summary for July 02, 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	1,682.41	275.27	253.88	1,285.84	21.39
2	Eastern Grid	659.13	63.59	59.85	716.84	3.74
Total		2,341.54	338.86	313.73	2,002.68	25.13

NOTE-

- 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.