

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	June 24, 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	184.40	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I & II under breakdown.
		Unit- II	178.16	400kV THP - Siliguri Line - II	0.00	
		Unit- III	67.77	400kV THP - Siliguri Line- IV	403.39	
		Unit- IV	138.20	400kV THP - Malbase Line - III	396.87	
		Unit- V	167.37	400kV Malbase - Siliguri Line	399.34	
		Unit- VI	71.15	-	-	
		Total	807.05	Auxiliary Consumption & Transformation Losses at Generator end	0.84%	
2	720MW MHP	Unit-I	197.66	400kV MHP - Jigmeling Line - I	293.95	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	197.74	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.93	
		Unit-IV	197.70	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)	36.26	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	136.90	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	204.22	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	205.22	
		-	-	80MVA, 220/132kV ICT - I (HV)	36.55	
		-	-	80MVA, 220/132kV ICT - II (HV)	37.20	
		-	-	220kV Tsirang - Jigmeling Line	75.03	
-	-	132kV Gelephu - Salakati Line	14.07			
Total	593.10	Auxiliary Consumption & Transformation Losses at Generator end	0.54%			
3	336MW CHP	Unit- I	91.46	220kV CHP - Birpara Line- I	78.25	
		Unit- II	91.40	220kV CHP - Birpara Line- II	77.99	
		Unit- III	91.47	220kV CHP - Malbase Line- III	148.05	
		Unit- IV	91.45	220kV CHP - Semtokha Line- IV	41.09	
		-	-	220kV Malbase - Birpara Line	13.10	
		-	-	66kV CHP - Chumdo Line	12.78	
		-	-	66kV CHP - Gedu Line	5.35	
		-	-	3x3MVA, 66/11kV TFR	1.37	
Total	365.78	Auxiliary Consumption & Transformation Losses at Generator end	0.25%			
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	56.70	
		Unit- II	12.10	66kV BHP - Lobeyasa Line	25.54	
		Total	24.40	220kV BHP - Tsirang Line	-17.21	
5	40MW BHP (L/S)	Unit- I	20.60	5MVA, 66/11kV TFR	0.56	
		Unit- II	21.20	30MVA ICT, 220/66kV (HV)	2.29	
		Total	41.80	Auxiliary Consumption & Transformation Losses at Generator end	0.92%	
6	126MW DHP	Unit-I	48.38	220kV DHP - Tsirang Line	94.90	220kV DHP_Dagapela Line on Standby.
		Unit-II	47.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	35.78	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	95.38	Auxiliary Consumption & Transformation Losses at Gen. end	0.29%			
7	60MW KHP	Unit- I	15.76	132kV KHP - Nangkhon Line	36.98	
		Unit-II	16.08	132kV KHP - Kilikhar Line	26.08	
		Unit- III	16.04	5MVA, 132/11kV TFR	0.50	
		Unit- IV	16.53	132kV Motanga - Rangia Line	33.93	
		Total	64.41	Auxiliary Consumption & Transformation Losses at Generator end	1.32%	

Note: Generation-Load Summary (MW) for June 24, 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	1,334.41	287.31	278.73	972.07	8.58
2	Eastern Grid	657.51	138.20	134.13	594.34	4.07
Total		1,991.92	425.51	412.86	1,566.41	12.65

Note: Generation-Load Summary for June 24, 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	1,490.46	237.16	226.97	1,206.53	10.19
2	Eastern Grid	658.23	73.52	69.26	631.48	4.26
Total		2,148.69	310.68	296.23	1,838.01	14.45

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 25, 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	184.33	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I & II under breakdown.
		Unit- II	156.11	400kV THP - Siliguri Line - II	0.00	
		Unit- III	68.55	400kV THP - Siliguri Line- IV	397.31	
		Unit- IV	138.59	400kV THP - Malbase Line - III	392.26	
		Unit- V	166.79	400kV Malbase - Siliguri Line	396.04	
		Unit- VI	80.82	-	-	
		Total	795.19	Auxiliary Consumption & Transformation Losses at Generator end	0.71%	
2	720MW MHP	Unit-I	197.81	400kV MHP - Jigmeling Line - I	293.75	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	197.87	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.74	
		Unit-IV	197.73	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)	10.83	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	142.53	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	214.51	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	215.38	
		-	-	80MVA, 220/132kV ICT - I (HV)	32.26	
		-	-	80MVA, 220/132kV ICT - II (HV)	32.79	
		-	-	220kV Tsirang - Jigmeling Line	90.01	
-	-	132kV Gelephu - Salakati Line	11.17			
Total	593.41	Auxiliary Consumption & Transformation Losses at Generator end	0.66%			
3	336MW CHP	Unit- I	91.18	220kV CHP - Birpara Line- I	81.04	
		Unit- II	91.19	220kV CHP - Birpara Line- II	80.93	
		Unit- III	91.44	220kV CHP - Malbase Line- III	152.25	
		Unit- IV	91.34	220kV CHP - Semtokha Line- IV	34.77	
		-	-	220kV Malbase - Birpara Line	14.82	
		-	-	66kV CHP - Chumdo Line	9.14	
		-	-	66kV CHP - Gedu Line	5.89	
		-	-	3x3MVA, 66/11kV TFR	0.95	
Total	365.15	Auxiliary Consumption & Transformation Losses at Generator end	0.05%			
4	24MW BHP (U/S)	Unit- I	11.80	220kV BHP - Semtokha Line	55.82	
		Unit- II	11.80	66kV BHP - Lobeysa Line	24.23	
		Total	23.60	220kV BHP - Tsirang Line	-15.00	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.38	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	2.00	
		Total	41.50	Auxiliary Consumption & Transformation Losses at Generator end	-0.51%	
6	126MW DHP	Unit-I	53.39	220kV DHP - Tsirang Line	107.86	220kV DHP_Dagapela Line on Standby.
		Unit-II	54.97	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	35.05	
		-	-	5MVA, 220/33kV TFR	0.40	
Total	108.36	Auxiliary Consumption & Transformation Losses at Generator end	0.09%			
7	60MW KHP	Unit- I	14.88	132kV KHP - Nangkhoh Line	37.99	
		Unit-II	15.36	132kV KHP - Kilikhar Line	22.81	
		Unit- III	15.15	5MVA, 132/11kV TFR	0.34	
		Unit- IV	15.94	132kV Motanga - Rangia Line	31.26	
		Total	61.33	Auxiliary Consumption & Transformation Losses at Generator end	0.31%	

Note: Generation-Load Summary (MW) for June 25, 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	1,333.80	273.65	268.08	970.14	5.57
2	Eastern Grid	654.74	129.90	125.79	614.85	4.11
Total		1,988.54	403.55	393.87	1,584.99	9.68

Note: Generation-Load Summary for June 25, 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	1,423.72	239.32	232.14	1,109.70	7.18
2	Eastern Grid	593.02	62.85	58.67	604.87	4.18
Total		2,016.74	302.17	290.81	1,714.57	11.36

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.