

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	June 29, 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	137.46	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I & II under breakdown. 400kV THP-Siliguri line IV took Emergency Shutdown at 18:07hrs.
		Unit- II	68.26	400kV THP - Siliguri Line - II	0.00	
		Unit- III	68.12	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	68.89	400kV THP - Malbase Line - III	536.99	
		Unit- V	69.08	400kV Malbase - Siliguri Line	539.01	
		Unit- VI	129.43	-	-	
		Total	541.24	Auxiliary Consumption & Transformation Losses at Generator end	0.79%	
2	720MW MHP	Unit-I	197.80	400kV MHP - Jigmeling Line - I	293.69	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	197.78	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.66	
		Unit-IV	197.64	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)	15.08	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	142.64	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	213.57	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	211.91	
		-	-	80MVA, 220/132kV ICT - I (HV)	37.82	
		-	-	80MVA, 220/132kV ICT - II (HV)	38.24	
		-	-	220kV Tsirang - Jigmeling Line	98.82	
-	-	132kV Gelephu - Salakati Line	18.64			
Total	593.22	Auxiliary Consumption & Transformation Losses at Generator end	0.65%			
3	336MW CHP	Unit- I	91.08	220kV CHP - Birpara Line- I	77.24	
		Unit- II	91.16	220kV CHP - Birpara Line- II	77.28	
		Unit- III	91.85	220kV CHP - Malbase Line- III	151.73	
		Unit- IV	91.37	220kV CHP - Semtokha Line- IV	38.67	
		-	-	220kV Malbase - Birpara Line	8.33	
		-	-	66kV CHP - Chumdo Line	13.70	
		-	-	66kV CHP - Gedu Line	5.20	
		-	-	3x3MVA, 66/11kV TFR	1.38	
Total	365.46	Auxiliary Consumption & Transformation Losses at Generator end	0.07%			
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	62.38	
		Unit- II	12.10	66kV BHP - Lobeysa Line	26.15	
		Total	24.40	220kV BHP - Tsirang Line	-23.43	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.58	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	3.07	
		Total	41.80	Auxiliary Consumption & Transformation Losses at Generator end	0.79%	
6	126MW DHP	Unit-I	63.59	220kV DHP - Tsirang Line	126.24	220kV DHP_Dagapela Line on Standby.
		Unit-II	63.21	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	35.60	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	126.80	Auxiliary Consumption & Transformation Losses at Gen. end	0.28%			
7	60MW KHP	Unit- I	16.55	132kV KHP - Nangkhoh Line	38.99	
		Unit-II	16.58	132kV KHP - Kilikhar Line	26.08	
		Unit- III	16.41	5MVA, 132/11kV TFR	0.41	
		Unit- IV	16.54	132kV Motanga - Rangia Line	34.41	
		Total	66.08	Auxiliary Consumption & Transformation Losses at Generator end	0.91%	

Note: Generation-Load Summary (MW) for June 29, 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	1,099.70	299.02	293.63	701.86	5.39
2	Eastern Grid	659.30	136.95	132.48	621.17	4.47
Total		1,759.00	435.97	426.11	1,323.03	9.86

Note: Generation-Load Summary for June 29, 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	1,228.82	255.70	251.61	917.22	4.09
2	Eastern Grid	657.66	76.98	73.48	636.58	3.50
Total		1,886.48	332.68	325.09	1,553.80	7.59

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 30, 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	185.16	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I & II under breakdown.
		Unit- II	184.98	400kV THP - Siliguri Line - II	0.00	
		Unit- III	185.33	400kV THP - Siliguri Line- IV	558.25	
		Unit- IV	184.58	400kV THP - Malbase Line - III	547.49	
		Unit- V	185.77	400kV Malbase - Siliguri Line	551.56	
		Unit- VI	185.98	-	-	
		Total	1,111.80	Auxiliary Consumption & Transformation Losses at Generator end	0.55%	
2	720MW MHP	Unit-I	197.91	400kV MHP - Jigmeling Line - I	293.98	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	197.97	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.84	
		Unit-IV	197.64	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)	15.86	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	141.50	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	211.88	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	212.58	
		-	-	80MVA, 220/132kV ICT - I (HV)	29.44	
		-	-	80MVA, 220/132kV ICT - II (HV)	29.94	
		-	-	220kV Tsirang - Jigmeling Line	75.86	
-	-	132kV Gelephu - Salakati Line	13.64			
Total	593.52	Auxiliary Consumption & Transformation Losses at Generator end	0.62%			
3	336MW CHP	Unit- I	91.77	220kV CHP - Birpara Line- I	55.26	Unit IV under shutdown.
		Unit- II	91.56	220kV CHP - Birpara Line- II	55.16	
		Unit- III	93.50	220kV CHP - Malbase Line- III	132.73	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	17.01	
		-	-	220kV Malbase - Birpara Line	-13.08	
		-	-	66kV CHP - Chumdo Line	10.44	
		-	-	66kV CHP - Gedu Line	5.06	
		-	-	3x3MVA, 66/11kV TFR	0.84	
Total	276.83	Auxiliary Consumption & Transformation Losses at Generator end	0.12%			
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	74.70	
		Unit- II	12.10	66kV BHP - Lobeyasa Line	25.28	
		Total	24.40	220kV BHP - Tsirang Line	-34.63	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.38	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	1.80	
		Total	41.80	Auxiliary Consumption & Transformation Losses at Generator end	0.71%	
6	126MW DHP	Unit-I	57.41	220kV DHP - Tsirang Line	113.87	220kV DHP_Dagapela Line on Standby.
		Unit-II	57.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	32.54	
		-	-	5MVA, 220/33kV TFR	0.53	
Total	114.41	Auxiliary Consumption & Transformation Losses at Generator end	0.01%			
7	60MW KHP	Unit- I	16.55	132kV KHP - Nangkhoh Line	43.34	
		Unit-II	16.59	132kV KHP - Kilikhar Line	21.84	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.45	
		Unit- IV	16.55	132kV Motanga - Rangia Line	25.02	
		Total	66.19	Auxiliary Consumption & Transformation Losses at Generator end	0.85%	

Note: Generation-Load Summary (MW) for June 30, 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	1,569.24	286.23	279.36	1,207.15	6.87
2	Eastern Grid	659.71	130.95	126.69	604.62	4.26
Total		2,228.95	417.18	406.05	1,811.77	11.13

Note: Generation-Load Summary for June 30, 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	1,627.44	260.62	252.32	1,277.62	8.30
2	Eastern Grid	659.14	70.86	66.79	677.48	4.07
Total		2,286.58	331.48	319.11	1,955.10	12.37

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.