

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	October 4, 2022
Hours:	19:00 Hours

Date	Time	Load(MW)
30-Aug-22	19:23 hrs	536.69

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	172.60	400kV THP - Siliguri Line - I	262.38	
		Unit- II	184.53	400kV THP - Siliguri Line - II	260.23	
		Unit- III	187.76	400kV THP - Siliguri Line- IV	254.13	
		Unit- IV	180.89	400kV THP - Malbase Line - III	305.41	
		Unit- V	180.57	400kV Malbase - Siliguri Line	239.97	
		Unit- VI	182.64	-	-	
		Total	1,088.99	Auxiliary Consumption & Transformation Losses at Generator end	0.63%	
2	720MW MHP	Unit-I	197.65	400kV MHP - Jigmeling Line - I	317.90	400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmo line I not in service. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	197.74	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	135.36	400kV MHP - Jigmeling Line - III	320.10	
		Unit-IV	196.03	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	83.63	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	22.90	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	163.25	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	244.92	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	244.72	
		-	-	80MVA, 220/132kV ICT - I (HV)	20.80	
		-	-	80MVA, 220/132kV ICT - II (HV)	21.20	
		-	-	220kV Tsirang - Jigmeling Line	-28.40	
-	-	132kV Gelephu - Salakati Line	27.76			
Total	726.78	Auxiliary Consumption & Transformation Losses at Generator end	0.71%			
3	336MW CHP	Unit- I	92.79	220kV CHP - Birpara Line- I	79.83	
		Unit- II	91.56	220kV CHP - Birpara Line- II	80.03	
		Unit- III	89.35	220kV CHP - Malbase Line- III	122.80	
		Unit- IV	76.58	220kV CHP - Semtokha Line- IV	43.51	
		-	-	220kV Malbase - Birpara Line	36.01	
		-	-	66kV CHP - Chumdo Line	16.63	
		-	-	66kV CHP - Gedu Line	4.82	
		-	-	3x3MVA, 66/11kV TFR	1.50	
Total	350.28	Auxiliary Consumption & Transformation Losses at Generator end	0.33%			
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	63.80	
		Unit- II	12.10	66kV BHP - Lobeysa Line	27.18	
		Total	24.40	220kV BHP - Tsirang Line	-25.93	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.54	
		Unit- II	21.20	30MVA ICT, 220/66kV (HV)	3.86	
		Total	41.70	Auxiliary Consumption & Transformation Losses at Generator end	0.77%	
6	126MW DHP	Unit-I	63.63	220kV DHP - Tsirang Line	0.00	220kV DHP_Tsirang Line on Standby.
		Unit-II	63.09	220kV DHP - Dagapela Line	126.21	
		-	-	220kV Jigmeling - Dagapela Line	-93.90	
		-	-	5MVA, 220/33kV TFR	0.50	
Total	126.72	Auxiliary Consumption & Transformation Losses at Gen. end	0.01%			
7	60MW KHP	Unit- I	16.57	132kV KHP - Nangkhor Line	36.16	
		Unit-II	16.51	132kV KHP - Kilikhar Line	28.54	
		Unit- III	16.44	5MVA, 132/11kV TFR	0.80	
		Unit- IV	16.62	132kV Motanga - Rangia Line	43.85	
		Total	66.14	Auxiliary Consumption & Transformation Losses at Generator end	0.97%	

Note: Generation-Load Summary (MW) for October 04, 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	1,632.09	354.01	345.49	1,212.58	8.52
2	Eastern Grid	792.92	133.92	128.13	724.50	5.79
Total		2,425.01	487.93	473.62	1,937.08	14.31

Note: Generation-Load Summary for October 04, 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	1,301.13	304.10	300.29	991.15	3.81
2	Eastern Grid	497.86	67.15	63.74	436.59	3.41
Total		1,798.99	371.25	364.03	1,427.74	7.22

NOTE- BHP and MAT 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: October 5, 2022
Hours: 09:00 Hours

Date: 30-Aug-22 **Time:** 19:23 hrs **Load(MW):** 536.69

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	185.28	400kV THP - Siliguri Line - I	271.58	
		Unit- II	183.12	400kV THP - Siliguri Line - II	269.88	
		Unit- III	184.31	400kV THP - Siliguri Line- IV	263.01	
		Unit- IV	184.47	400kV THP - Malbase Line - III	296.20	
		Unit- V	185.52	400kV Malbase - Siliguri Line	253.20	
		Unit- VI	186.04	-	-	
		Total	1,108.74	Auxiliary Consumption & Transformation Losses at Generator end	0.73%	
2	720MW MHP	Unit-I	197.74	400kV MHP - Jigmeling Line - I	334.90	400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmoo line I not in service. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	197.73	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	135.38	400kV MHP - Jigmeling Line - III	337.10	
		Unit-IV	197.49	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	51.60	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	37.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	175.25	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	262.57	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	262.48	
		-	-	80MVA, 220/132kV ICT - I (HV)	13.40	
		-	-	80MVA, 220/132kV ICT - II (HV)	13.50	
		-	-	220kV Tsirang - Jigmeling Line	-21.91	
-	-	132kV Gelephu - Salakati Line	24.69			
Total	728.34	Auxiliary Consumption & Transformation Losses at Generator end	0.65%			
3	336MW CHP	Unit- I	91.48	220kV CHP - Birpara Line- I	77.28	
		Unit- II	91.20	220kV CHP - Birpara Line- II	77.35	
		Unit- III	91.88	220kV CHP - Malbase Line- III	136.69	
		Unit- IV	76.03	220kV CHP - Semtokha Line- IV	38.75	
		-	-	220kV Malbase - Birpara Line	20.74	
		-	-	66kV CHP - Chumdo Line	14.56	
		-	-	66kV CHP - Gedu Line	4.35	
		-	-	3x3MVA, 66/11kV TFR	1.10	
Total	350.59	Auxiliary Consumption & Transformation Losses at Generator end	0.15%			
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	59.52	
		Unit- II	12.20	66kV BHP - Lobeyasa Line	25.49	
		Total	24.50	220kV BHP - Tsirang Line	-19.63	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.40	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	2.00	
		Total	41.60	Auxiliary Consumption & Transformation Losses at Generator end	0.48%	
6	126MW DHP	Unit-I	58.46	220kV DHP - Tsirang Line	0.00	220kV DHP_TSI Line on Standby.
		Unit-II	60.09	220kV DHP - Dagapela Line	117.98	
		-	-	220kV Jigmeling - Dagapela Line	-86.40	
		-	-	5MVA, 220/33kV TFR	0.56	
Total	118.55	Auxiliary Consumption & Transformation Losses at Generator end	0.01%			
7	60MW KHP	Unit- I	16.33	132kV KHP - Nangkhoh Line	39.16	
		Unit-II	16.52	132kV KHP - Kilikhar Line	25.49	
		Unit- III	16.40	5MVA, 132/11kV TFR	0.60	
		Unit- IV	16.51	132kV Motanga - Rangia Line	39.24	
		Total	65.76	Auxiliary Consumption & Transformation Losses at Generator end	0.78%	

Note: Generation-Load Summary (MW) for October 05, 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	1,643.98	346.45	337.54	1,233.04	8.91
2	Eastern Grid	794.10	94.36	89.11	764.23	5.25
Total		2,438.08	440.81	426.65	1,997.27	14.16

Note: Generation-Load Summary for October 05, 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	1,178.11	265.93	258.86	896.01	7.07
2	Eastern Grid	484.81	54.47	52.75	446.51	1.72
Total		1,662.92	320.40	311.61	1,342.52	8.79

Notes: MAT 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.