

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	August 23, 2022
Hours:	19:00 Hours

Date	Time	Load(MW)
15-Aug-22	19:30 hrs	521.02

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	184.82	400kV THP - Siliguri Line - I	0.00	400kV THP_ Siliguri Line I under breakdown
		Unit- II	185.84	400kV THP - Siliguri Line - II	328.89	
		Unit- III	89.17	400kV THP - Siliguri Line- IV	316.92	
		Unit- IV	167.90	400kV THP - Malbase Line - III	347.99	
		Unit- V	184.65	400kV Malbase - Siliguri Line	303.50	
		Unit- VI	184.76	-	-	
		Total	997.14	Auxiliary Consumption & Transformation Losses at Generator end	0.33%	
2	720MW MHP	Unit-I	190.16	400kV MHP - Jigmeling Line - I	349.91	400kV MHP-JLG Line II on Standby. 400kV MHP-JLG Line IV under breakdown. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	190.22	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	135.50	400kV MHP - Jigmeling Line - III	352.08	
		Unit-IV	190.61	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)	65.19	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	157.41	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	235.41	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	236.33	
		-	-	80MVA, 220/132kV ICT - I (HV)	41.54	
		-	-	80MVA, 220/132kV ICT - II (HV)	42.31	
		-	-	220kV Tsirang - Jigmeling Line	-3.27	
-	-	132kV Gelephu - Salakati Line	13.77			
Total	706.49	Auxiliary Consumption & Transformation Losses at Generator end	0.64%			
3	336MW CHP	Unit- I	91.76	220kV CHP - Birpara Line- I	109.34	220kV MAL_Birpara Line under breakdown.
		Unit- II	90.92	220kV CHP - Birpara Line- II	109.96	
		Unit- III	91.53	220kV CHP - Malbase Line- III	33.85	
		Unit- IV	75.30	220kV CHP - Semtokha Line- IV	73.65	
		-	-	220kV Malbase - Birpara Line	0.00	
		-	-	66kV CHP - Chumdo Line	15.99	
		-	-	66kV CHP - Gedu Line	4.97	
		-	-	3x3MVA, 66/11kV TFR	1.29	
Total	349.51	Auxiliary Consumption & Transformation Losses at Generator end	0.13%			
4	24MW BHP (U/S)	Unit- I	10.34	220kV BHP - Semtokha Line	33.03	
		Unit- II	10.34	66kV BHP - Lobeyasa Line	25.69	
		Total	20.68	220kV BHP - Tsirang Line	-0.86	
5	40MW BHP (L/S)	Unit- I	18.72	5MVA, 66/11kV TFR	0.66	
		Unit- II	18.89	30MVA ICT, 220/66kV (HV)	5.50	
		Total	37.61	Auxiliary Consumption & Transformation Losses at Generator end	-0.39%	
6	126MW DHP	Unit-I	38.37	220kV DHP - Tsirang Line	0.00	220kV DHP_Tsirang Line on Standby.
		Unit-II	38.00	220kV DHP - Dagapela Line	75.84	
		-	-	220kV Jigmeling - Dagapela Line	-20.73	
		-	-	5MVA, 220/33kV TFR	0.40	
Total	76.37	Auxiliary Consumption & Transformation Losses at Gen. end	0.17%			
7	60MW KHP	Unit- I	16.44	132kV KHP - Nangkhoh Line	37.70	
		Unit-II	16.53	132kV KHP - Kilikhar Line	27.24	
		Unit- III	16.56	5MVA, 132/11kV TFR	0.50	
		Unit- IV	16.56	132kV Motanga - Rangia Line	30.85	
		Total	66.09	Auxiliary Consumption & Transformation Losses at Generator end	0.98%	

Note: Generation-Load Summary (MW) for August 23, 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	1,481.31	295.24	291.54	1,168.61	3.70
2	Eastern Grid	772.58	116.27	111.12	673.77	5.15
Total		2,253.89	411.51	402.66	1,842.38	8.85

Note: Generation-Load Summary for August 23, 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	1,586.13	306.69	296.96	1,235.75	9.73
2	Eastern Grid	853.08	81.59	76.15	815.18	5.44
Total		2,439.21	388.28	373.11	2,050.93	15.17

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.

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: August 24, 2022
Hours: 09:00 Hours

Date: 15-Aug-22 **Time:** 19:30 hrs **Load(MW):** 521.02

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	186.29	400kV THP - Siliguri Line - I	0.00	400kV THP_Siliguri Line I under breakdown.
		Unit- II	183.67	400kV THP - Siliguri Line - II	364.67	
		Unit- III	168.22	400kV THP - Siliguri Line- IV	348.85	
		Unit- IV	183.80	400kV THP - Malbase Line - III	371.31	
		Unit- V	185.14	400kV Malbase - Siliguri Line	341.09	
		Unit- VI	185.29	-	-	
		Total	1,092.41	Auxiliary Consumption & Transformation Losses at Generator end	0.69%	
2	720MW MHP	Unit-I	150.19	400kV MHP - Jigmeling Line - I	290.60	400kV MHP-JLG Line II under standby and IV under breakdown. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	150.18	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	135.48	400kV MHP - Jigmeling Line - III	292.40	
		Unit-IV	150.63	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)	36.53	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	135.37	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	202.40	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	203.56	
		-	-	80MVA, 220/132kV ICT - I (HV)	31.16	
		-	-	80MVA, 220/132kV ICT - II (HV)	31.74	
		-	-	220kV Tsirang - Jigmeling Line	5.14	
-	-	132kV Gelephu - Salakati Line	5.31			
Total	586.48	Auxiliary Consumption & Transformation Losses at Generator end	0.59%			
3	336MW CHP	Unit- I	91.51	220kV CHP - Birpara Line- I	107.61	220kV MAL_BIR line under breakdown.
		Unit- II	90.88	220kV CHP - Birpara Line- II	107.35	
		Unit- III	91.49	220kV CHP - Malbase Line- III	44.03	
		Unit- IV	75.31	220kV CHP - Semtokha Line- IV	70.01	
		-	-	220kV Malbase - Birpara Line	0.00	
		-	-	66kV CHP - Chumdo Line	12.63	
		-	-	66kV CHP - Gedu Line	6.28	
		-	-	3x3MVA, 66/11kV TFR	0.91	
Total	349.19	Auxiliary Consumption & Transformation Losses at Generator end	0.11%			
4	24MW BHP (U/S)	Unit- I	10.30	220kV BHP - Semtokha Line	26.90	
		Unit- II	9.90	66kV BHP - Lobeysa Line	23.42	
		Total	20.20	220kV BHP - Tsirang Line	6.82	
5	40MW BHP (L/S)	Unit- I	18.80	5MVA, 66/11kV TFR	0.43	
		Unit- II	19.00	30MVA ICT, 220/66kV (HV)	3.97	
		Total	37.80	Auxiliary Consumption & Transformation Losses at Generator end	0.74%	
6	126MW DHP	Unit-I	38.37	220kV DHP - Tsirang Line	0.00	220kV DHP_TSI Line on Standby.
		Unit-II	39.02	220kV DHP - Dagapela Line	76.95	
		-	-	220kV Jigmeling - Dagapela Line	-22.38	
		-	-	5MVA, 220/33kV TFR	0.35	
Total	77.39	Auxiliary Consumption & Transformation Losses at Generator end	0.12%			
7	60MW KHP	Unit- I	16.55	132kV KHP - Nangkhoh Line	41.88	
		Unit-II	16.52	132kV KHP - Kilikhar Line	23.23	
		Unit- III	16.56	5MVA, 132/11kV TFR	0.39	
		Unit- IV	16.60	132kV Motanga - Rangia Line	29.34	
		Total	66.23	Auxiliary Consumption & Transformation Losses at Generator end	1.10%	

Note: Generation-Load Summary (MW) for August 24, 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	1,576.99	279.90	271.43	1,269.57	8.47
2	Eastern Grid	652.71	104.25	100.04	575.98	4.21
Total		2,229.70	384.15	371.47	1,845.55	12.68

Note: Generation-Load Summary for August 24, 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	1,669.71	284.48	277.64	1,284.53	6.84
2	Eastern Grid	852.28	60.21	55.11	892.77	5.10
Total		2,521.99	344.69	332.75	2,177.30	11.94

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.