

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: October 16, 2022
Hours: 19:00 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	186.11	400kV THP - Siliguri Line - I	176.76	
		Unit- II	185.12	400kV THP - Siliguri Line - II	175.08	
		Unit- III	68.55	400kV THP - Siliguri Line- IV	170.38	
		Unit- IV	70.32	400kV THP - Malbase Line - III	234.73	
		Unit- V	68.08	400kV Malbase - Siliguri Line	155.99	
		Unit- VI	186.09	-	-	
		Total	764.27	Auxiliary Consumption & Transformation Losses at Generator end	0.96%	
2	720MW MHP	Unit-I	85.14	400kV MHP - Jigmeling Line - I	166.73	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	90.16	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	85.56	400kV MHP - Jigmeling Line - III	167.82	
		Unit-IV	150.23	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	73.75	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	18.13	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	78.17	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	117.79	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	117.45	
		-	-	80MVA, 220/132kV ICT - I (HV)	18.06	
		-	-	80MVA, 220/132kV ICT - II (HV)	18.37	
		-	-	220kV Tsirang - Jigmeling Line	-20.05	
-	-	132kV Gelephu - Salakati Line	20.24			
Total	411.09	Auxiliary Consumption & Transformation Losses at Generator end	0.68%			
3	336MW CHP	Unit- I	91.27	220kV CHP - Birpara Line- I	64.40	
		Unit- II	91.18	220kV CHP - Birpara Line- II	64.29	
		Unit- III	91.63	220kV CHP - Malbase Line- III	111.13	
		Unit- IV	75.26	220kV CHP - Semtokha Line- IV	94.57	
		-	-	220kV Malbase - Birpara Line	19.05	
		-	-	66kV CHP - Chumdo Line	0.99	
		-	-	66kV CHP - Gedu Line	12.09	
		-	-	3x3MVA, 66/11kV TFR	1.84	
Total	349.34	Auxiliary Consumption & Transformation Losses at Generator end	0.01%			
4	24MW BHP (U/S)	Unit- I	10.40	220kV BHP - Semtokha Line	43.90	
		Unit- II	10.00	66kV BHP - Lobeyssa Line	28.60	
		Total	20.40	220kV BHP - Tsirang Line	-17.00	
5	40MW BHP (L/S)	Unit- I	18.00	5MVA, 66/11kV TFR	0.60	
		Unit- II	17.90	30MVA ICT, 220/66kV (HV)	9.30	
		Total	35.90	Auxiliary Consumption & Transformation Losses at Generator end	0.36%	
6	126MW DHP	Unit-I	35.31	220kV DHP - Tsirang Line	0.00	220kV DHP_Tsirang Line on Standby.
		Unit-II	36.03	220kV DHP - Dagapela Line	70.91	
		-	-	220kV Jigmeling - Dagapela Line	-38.86	
		-	-	5MVA, 220/33kV TFR	0.42	
Total	71.34	Auxiliary Consumption & Transformation Losses at Gen. end	0.01%			
7	60MW KHP	Unit- I	16.59	132kV KHP - Nangkhoh Line	37.18	
		Unit-II	16.59	132kV KHP - Kilikhar Line	27.82	
		Unit- III	16.56	5MVA, 132/11kV TFR	0.60	
		Unit- IV	16.56	132kV Motanga - Rangia Line	52.77	
		Total	66.30	Auxiliary Consumption & Transformation Losses at Generator end	1.06%	

Note: Generation-Load Summary (MW) for October 16, 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	1,241.25	396.49	388.93	825.95	7.56
2	Eastern Grid	477.39	109.78	106.29	386.42	3.49
Total		1,718.64	506.27	495.22	1,212.37	11.05

Note: Generation-Load Summary for October 16, 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	883.76	285.68	284.09	558.48	1.59
2	Eastern Grid	364.32	75.88	74.06	328.04	1.82
Total		1,248.08	361.56	358.15	886.52	3.41

NOTE-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 17, 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	167.58	400kV THP - Siliguri Line - I	186.90	
		Unit- II	168.17	400kV THP - Siliguri Line - II	185.33	
		Unit- III	69.68	400kV THP - Siliguri Line - IV	180.52	
		Unit- IV	70.35	400kV THP - Malbase Line - III	219.80	
		Unit- V	137.28	400kV Malbase - Siliguri Line	171.49	
		Unit- VI	168.63	-	-	
		Total	781.69	Auxiliary Consumption & Transformation Losses at Generator end	1.17%	
2	720MW MHP	Unit-I	81.11	400kV MHP - Jigmeling Line - I	166.28	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	81.15	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	81.52	400kV MHP - Jigmeling Line - III	167.44	
		Unit-IV	150.33	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	56.94	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	-5.95	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	84.09	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	127.15	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	126.11	
		-	-	80MVA, 220/132kV ICT - I (HV)	11.85	
		-	-	80MVA, 220/132kV ICT - II (HV)	12.07	
		-	-	220kV Tsirang - Jigmeling Line	-7.90	
-	-	132kV Gelephu - Salakati Line	14.81			
Total	394.11	Auxiliary Consumption & Transformation Losses at Generator end	0.88%			
3	336MW CHP	Unit- I	91.27	220kV CHP - Birpara Line- I	67.39	
		Unit- II	91.18	220kV CHP - Birpara Line- II	67.43	
		Unit- III	91.63	220kV CHP - Malbase Line- III	118.81	
		Unit- IV	75.26	220kV CHP - Semtokha Line- IV	81.94	
		-	-	220kV Malbase - Birpara Line	19.03	
		-	-	66kV CHP - Chumdo Line	0.19	
		-	-	66kV CHP - Gedu Line	11.24	
		-	-	3x3MVA, 66/11kV TFR	1.00	
Total	349.34	Auxiliary Consumption & Transformation Losses at Generator end	0.38%			
4	24MW BHP (U/S)	Unit- I	10.20	220kV BHP - Semtokha Line	35.71	
		Unit- II	9.90	66kV BHP - Lobeyssa Line	25.03	
		Total	20.10	220kV BHP - Tsirang Line	-5.38	
5	40MW BHP (L/S)	Unit- I	18.10	5MVA, 66/11kV TFR	0.35	
		Unit- II	18.10	30MVA ICT, 220/66kV (HV)	5.88	
		Total	36.20	Auxiliary Consumption & Transformation Losses at Generator end	1.05%	
6	126MW DHP	Unit-I	34.82	220kV DHP - Tsirang Line	0.00	220kV DHP_TSI Line on Standby.
		Unit-II	34.98	220kV DHP - Dagapela Line	69.40	
		-	-	220kV Jigmeling - Dagapela Line	-38.35	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	69.80	Auxiliary Consumption & Transformation Losses at Generator end	0.29%			
7	60MW KHP	Unit- I	16.54	132kV KHP - Nangkhoh Line	42.48	
		Unit-II	16.53	132kV KHP - Kilikhar Line	22.73	
		Unit- III	16.44	5MVA, 132/11kV TFR	0.37	
		Unit- IV	16.50	132kV Motanga - Rangia Line	37.22	
		Total	66.01	Auxiliary Consumption & Transformation Losses at Generator end	0.65%	

Note: Generation-Load Summary (MW) for October 17, 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	1,257.13	348.59	337.32	878.09	11.27
2	Eastern Grid	460.12	101.19	97.31	389.38	3.88
Total		1,717.25	449.78	434.63	1,267.47	15.15

Note: Generation-Load Summary for October 17, 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	1,166.48	304.45	300.84	793.75	3.61
2	Eastern Grid	442.28	53.14	51.23	457.42	1.91
Total		1,608.76	357.59	352.07	1,251.17	5.52

Note: MAT 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.