

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	December 1, 2022
Hours:	18:00 Hours

Date	Time	Load(MW)
17-Nov-22	18:39:09hrs	616.55

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Line - I	0.00	Unit-I & II under Shutdown. Unit-IV on Standby. 400kV Tala-Malbase line under Shutdown. 400kV THP - Siliguri Line- I on Standby.
		Unit- II	0.00	400kV THP - Siliguri Line - II	139.75	
		Unit- III	118.05	400kV THP - Siliguri Line- IV	134.51	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	68.96	400kV Malbase - Siliguri Line	-88.37	
		Unit- VI	89.98	-	-	
		Total	276.99	Auxiliary Consumption & Transformation Losses at Generator end	0.99%	
2	720MW MHP	Unit-I	85.22	400kV MHP - Jigmeling Line - I	77.24	Unit-III & IV under shutdown. 400kV MHP-JLG Line II, III & IV on Standby. 132kV MHP_Yurmoo Line- I not in service. 400kV JLG_ALI line- II (Direct) Standby. 400kV JLG_ALI Line- I (Interim) on Standby.
		Unit-II	85.22	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	91.55	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	118.68	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-16.73	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-25.66	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	12.46	
		-	-	80MVA, 220/132kV ICT - II (HV)	12.76	
		-	-	220kV Tsirang - Jigmeling Line	-31.31	
-	-	132kV Gelephu - Salakati Line	-1.11			
Total	170.44	Auxiliary Consumption & Transformation Losses at Generator end	0.97%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I under Shutdown. 220kV CHP_Birpara Line I & 66kV CHP_GED Line on Standby
		Unit- II	38.51	220kV CHP - Birpara Line- II	-15.54	
		Unit- III	40.24	220kV CHP - Malbase Line- III	29.73	
		Unit- IV	52.22	220kV CHP - Semtokha Line- IV	87.41	
		-	-	220kV Malbase - Birpara Line	-48.62	
		-	-	66kV CHP - Chumdo Line	26.88	
		-	-	66kV CHP - Gedu Line	0.00	
		-	-	3x3MVA, 66/11kV TFR	2.01	
Total	130.97	Auxiliary Consumption & Transformation Losses at Generator end	0.37%			
4	24MW BHP (U/S)	Unit- I	5.10	220kV BHP - Semtokha Line	61.68	
		Unit- II	4.90	66kV BHP - Lobeyasa Line	28.23	
		Total	10.00	220kV BHP - Tsirang Line	-60.09	
5	40MW BHP (L/S)	Unit- I	10.00	5MVA, 66/11kV TFR	0.84	
		Unit- II	10.60	30MVA ICT, 220/66kV (HV)	19.30	
		Total	20.60	Auxiliary Consumption & Transformation Losses at Generator end	-0.20%	
6	126MW DHP	Unit-I	33.89	220kV DHP - Tsirang Line	33.82	Unit-II on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	62.95	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	33.89	Auxiliary Consumption & Transformation Losses at Gen. end	-0.38%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	10.92	Unit- I under Shutdown. Unit- III on Standby.
		Unit-II	16.07	132kV KHP - Kilikhar Line	20.23	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.68	
		Unit- IV	16.09	132kV Motanga - Rangia Line	12.37	
		Total	32.16	Auxiliary Consumption & Transformation Losses at Generator end	1.03%	

Note: Generation-Load Summary (MW) for December 01, 2022 at 18:00hrs.

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	472.45	382.03	379.01	121.73	3.02
2	Eastern Grid	202.60	202.42	200.44	-31.13	1.98
Total		675.05	584.45	579.45	90.60	5.00

Note: Generation-Load Summary for December 01, 2021 at 18:00hrs.

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	592.76	353.22	349.58	267.15	3.64
2	Eastern Grid	201.02	101.05	98.82	72.36	2.23
Total		793.78	454.27	448.40	339.51	5.87

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:	December 2, 2022
Hours:	09:00 Hours

Date	Time	Load(MW)
17-Nov-22	18:39:09hrs	616.55

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Line - I	0.00	Unit-I & II under Shutdown. Unit-IV on Standby. 400kV Tala-Malbase line under Shutdown. 400kV THP - Siliguri Line- I on Standby.
		Unit- II	0.00	400kV THP - Siliguri Line - II	198.22	
		Unit- III	148.80	400kV THP - Siliguri Line- IV	191.48	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	165.90	400kV Malbase - Siliguri Line	-64.73	
		Unit- VI	78.39	-	-	
		Total	393.09	Auxiliary Consumption & Transformation Losses at Generator end	0.86%	
2	720MW MHP	Unit-I	114.81	400kV MHP - Jigmeling Line - I	148.80	Unit-III & IV under shutdown. 400kV MHP-JLG Line II, III & IV on Standby. 132kV MHP_Yurmo Line- I not in service. 400kV JLG_ALI Line-II (Direct) Standby. 400kV JLG_ALI Line- I (Interim) on Standby.
		Unit-II	114.80	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	79.15	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	97.30	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	18.91	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	30.38	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	7.70	
		-	-	80MVA, 220/132kV ICT - II (HV)	7.90	
		-	-	220kV Tsirang - Jigmeling Line	-20.40	
-	-	132kV Gelephu - Salakati Line	3.70			
Total	229.61	Auxiliary Consumption & Transformation Losses at Generator end	0.72%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I under Shutdown. 220kV CHP_Birpara Line I & 66kV CHP_GED Line on Standby.
		Unit- II	61.78	220kV CHP - Birpara Line- II	9.09	
		Unit- III	67.43	220kV CHP - Malbase Line- III	77.32	
		Unit- IV	59.52	220kV CHP - Semtokha Line- IV	77.77	
		-	-	220kV Malbase - Birpara Line	-45.42	
		-	-	66kV CHP - Chumdo Line	22.54	
		-	-	66kV CHP - Gedu Line	0.00	
		-	-	3x3MVA, 66/11kV TFR	1.30	
Total	188.73	Auxiliary Consumption & Transformation Losses at Generator end	0.38%			
4	24MW BHP (U/S)	Unit- I	5.00	220kV BHP - Semtokha Line	55.30	
		Unit- II	4.80	66kV BHP - Lobeyasa Line	25.43	
		Total	9.80	220kV BHP - Tsirang Line	-50.82	
5	40MW BHP (L/S)	Unit- I	10.00	5MVA, 66/11kV TFR	0.51	
		Unit- II	10.50	30MVA ICT, 220/66kV (HV)	16.32	
		Total	20.50	Auxiliary Consumption & Transformation Losses at Generator end	-0.40%	
6	126MW DHP	Unit-I	33.53	220kV DHP - Tsirang Line	33.30	Unit-II on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	61.60	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	33.53	Auxiliary Consumption & Transformation Losses at Generator end	0.09%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	15.07	Unit-I under Shutdown. Unit-III on Standby.
		Unit-II	16.10	132kV KHP - Kilikhar Line	16.16	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.50	
		Unit- IV	16.07	132kV Motanga - Rangia Line	7.22	
		Total	32.17	Auxiliary Consumption & Transformation Losses at Generator end	1.37%	

Note: Generation-Load Summary (MW) for December 02, 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	645.65	377.41	373.40	288.64	4.01
2	Eastern Grid	261.78	181.17	179.07	60.21	2.10
Total		907.43	558.58	552.47	348.85	6.11

Note: Generation-Load Summary for December 02, 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	593.55	343.73	334.98	268.98	8.75
2	Eastern Grid	219.42	81.61	79.82	118.65	1.79
Total		812.97	425.34	414.80	387.63	10.54

Note:-BHP & MHP 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.