

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	March 7, 2023
Hours:	18:00 Hours

Date	Time	Load(MW)
10-Feb-23	19:12:46hrs	646.17

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	98.87	400kV THP - Siliguri Line - I	0.00	Unit-IV, V & VI under AMP. Unit-III on Standby. 400kV THP- Siliguri Line I under shutdown. 400kV THP- Siliguri Line IV on standby
		Unit- II	142.93	400kV THP - Siliguri Line - II	77.91	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	162.32	
		Unit- V	0.00	400kV Malbase - Siliguri Line	53.74	
		Unit- VI	0.00	-	-	
		Total	241.80	Auxiliary Consumption & Transformation Losses at Generator end	0.65%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00	Unit-I & Unit-III under AMP. 400kV MHP-JLG Line I, III & IV on Standby. 132kV MHP_Yurmo Line- I not in service. 400kV JLG_ALI Line- I (Interim) under Shutdown and 400kV JLG_ALI line -II (Interim) on Standby
		Unit-II	79.66	400kV MHP - Jigmeling Line - II	94.88	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	105.07	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	86.80	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	109.74	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-6.45	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-7.49	
		-	-	80MVA, 220/132kV ICT - I (HV)	6.66	
		-	-	80MVA, 220/132kV ICT - II (HV)	6.80	
		-	-	220kV Tsirang - Jigmeling Line	-59.66	
-	-	132kV Gelephu - Salakati Line	-16.03			
Total	184.73	Auxiliary Consumption & Transformation Losses at Generator end	1.65%			
3	336MW CHP	Unit- I	50.05	220kV CHP - Birpara Line- I	-13.08	Unit-II & IV under AMP.
		Unit- II	0.00	220kV CHP - Birpara Line- II	-13.08	
		Unit- III	51.24	220kV CHP - Malbase Line- III	28.41	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	69.29	
		-	-	220kV Malbase - Birpara Line	-43.96	
		-	-	66kV CHP - Chumdo Line	22.06	
		-	-	66kV CHP - Gedu Line	6.90	
		-	-	3x3MVA, 66/11kV TFR	0.81	
Total	101.29	Auxiliary Consumption & Transformation Losses at Generator end	-0.02%			
4	24MW BHP (U/S)	Unit- I	5.10	220kV BHP - Semtokha Line	65.00	L/S & U/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	24.42	
		Total	5.10	220kV BHP - Tsirang Line	-73.51	
5	40MW BHP (L/S)	Unit- I	11.02	5MVA, 66/11kV TFR	0.50	L/S & U/S Unit-II under AMP.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	19.98	
		Total	11.02	Auxiliary Consumption & Transformation Losses at Generator end	-1.80%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	17.13	Unit-I on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	17.38	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	37.19	
		-	-	5MVA, 220/33kV TFR	0.24	
Total	17.38	Auxiliary Consumption & Transformation Losses at Gen. end	0.06%			
7	60MW KHP	Unit- I	10.06	132kV KHP - Nangkhoh Line	6.07	Unit-II on Standby. Unit-IV under AMP.
		Unit-II	0.00	132kV KHP - Kilikhar Line	13.26	
		Unit- III	10.07	5MVA, 132/11kV TFR	0.54	
		Unit- IV	0.00	132kV Motanga - Rangia Line	7.09	
		Total	20.13	Auxiliary Consumption & Transformation Losses at Generator end	1.29%	

Note: Generation-Load Summary (MW) for March 07, 2023 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	376.59	374.72	373.45	61.53	1.27
2	Eastern Grid	204.86	168.08	164.77	-22.88	3.31
Total		581.45	542.80	538.22	38.65	4.58

Note: Generation-Load Summary for March 07, 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	235.14	345.24	344.60	-48.96	0.64
2	Eastern Grid	205.75	58.14	57.58	86.47	0.56
Total		440.89	403.38	402.18	37.51	1.20

Note: Jigmeling 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:	March 8, 2023
Hours:	09:00 Hours

Date	Time	Load(MW)
10-Feb-23	19:12:46hrs	646.17

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	103.07	400kV THP - Siliguri Line - I	0.00	Unit-IV, V & VI under AMP. Unit-III on Standby. 400kV THP- Siliguri Line I under shutdown. 400kV THP- Siliguri Line IV on standby
		Unit- II	115.48	400kV THP - Siliguri Line - II	70.02	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	147.75	
		Unit- V	0.00	400kV Malbase - Siliguri Line	46.70	
		Unit- VI	0.00	-	-	
		Total	218.55	Auxiliary Consumption & Transformation Losses at Generator end	0.36%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00	Unit-I & Unit-III under AMP 400kV MHP-JLG Line I,III & IV on Standby. 132kV MHP_Yurmo Line- I not in service. 400kV JLG_ALI Line-I (Interim) under Shutdown. 400kV JLG_ALI Line-II (Interim) on Standby.
		Unit-II	84.73	400kV MHP - Jigmeling Line - II	113.70	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	109.99	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	79.16	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	122.11	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-5.33	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-3.87	
		-	-	80MVA, 220/132kV ICT - I (HV)	2.44	
		-	-	80MVA, 220/132kV ICT - II (HV)	2.52	
		-	-	220kV Tsirang - Jigmeling Line	-52.10	
-	-	132kV Gelephu - Salakati Line	-11.38			
Total	194.72	Auxiliary Consumption & Transformation Losses at Generator end	0.96%			
3	336MW CHP	Unit- I	50.74	220kV CHP - Birpara Line- I	0.00	Unit-II and IV under AMP. 220kV CHP-Birpara Line-I on Standby
		Unit- II	0.00	220kV CHP - Birpara Line- II	-23.00	
		Unit- III	32.13	220kV CHP - Malbase Line- III	11.15	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	66.89	
		-	-	220kV Malbase - Birpara Line	-46.22	
		-	-	66kV CHP - Chumdo Line	21.40	
		-	-	66kV CHP - Gedu Line	5.41	
		-	-	3x3MVA, 66/11kV TFR	0.61	
Total	82.87	Auxiliary Consumption & Transformation Losses at Generator end	0.49%			
4	24MW BHP (U/S)	Unit- I	5.10	220kV BHP - Semtokha Line	58.20	L/S & U/S unit-II under AMP
		Unit- II	0.00	66kV BHP - Lobeyasa Line	22.93	
		Total	5.10	220kV BHP - Tsirang Line	-65.72	
5	40MW BHP (L/S)	Unit- I	10.40	5MVA, 66/11kV TFR	0.42	L/S & U/S unit-II under AMP
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	18.36	
		Total	10.40	Auxiliary Consumption & Transformation Losses at Generator end	-2.13%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	16.72	Unit-I on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	16.97	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	64.98	
		-	-	5MVA, 220/33kV TFR	0.24	
Total	16.97	Auxiliary Consumption & Transformation Losses at Generator end	0.06%			
7	60MW KHP	Unit- I	15.02	132kV KHP - Nangkhoh Line	15.49	Unit-II on Standby. Unit-IV under AMP.
		Unit-II	0.00	132kV KHP - Kilikhar Line	13.78	
		Unit- III	15.02	5MVA, 132/11kV TFR	0.47	
		Unit- IV	0.00	132kV Motanga - Rangia Line	3.87	
		Total	30.04	Auxiliary Consumption & Transformation Losses at Generator end	1.00%	

Note: Generation-Load Summary (MW) for March 08, 2023 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	333.89	338.49	337.62	47.50	0.87
2	Eastern Grid	224.76	189.37	187.21	-16.71	2.16
Total		558.65	527.86	524.83	30.79	3.03

Note: Generation-Load Summary for March 08, 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	229.26	338.20	337.66	-43.16	0.54
2	Eastern Grid	326.85	44.76	42.55	216.31	2.21
Total		556.11	382.96	380.21	173.15	2.75

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.