

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	March 8, 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	118.61	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	112.32	400kV THP - Siliguri Line - II	76.89	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	152.40	
		Unit- V	0.00	400kV Malbase - Siliguri Line	54.53	
		Unit- VI	0.00	-	-	
		Total	230.93	Auxiliary Consumption & Transformation Losses at Generator end	0.71%	
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	79.82	400kV MHP - Jigmeling Line - II	81.07	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	85.01	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	81.95	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	124.17	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-22.23	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-21.04	
		-	-	80MVA, 220/132kV ICT - I (HV)	4.69	
		-	-	80MVA, 220/132kV ICT - II (HV)	4.85	
		-	-	220kV Tsirang - Jigmeling Line	-48.90	
-	-	132kV Gelephu - Salakati Line	-13.39			
Total	164.83	Auxiliary Consumption & Transformation Losses at Generator end	1.10%			
3	336MW CHP	Unit- I	49.53	220kV CHP - Birpara Line- I	0.00	Unit-II & IV under AMP.
		Unit- II	0.00	220kV CHP - Birpara Line- II	-17.99	
		Unit- III	51.03	220kV CHP - Malbase Line- III	9.94	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	79.17	
		-	-	220kV Malbase - Birpara Line	-36.53	
		-	-	66kV CHP - Chumdo Line	24.08	
		-	-	66kV CHP - Gedu Line	3.61	
		-	-	3x3MVA, 66/11kV TFR	0.70	
Total	100.56	Auxiliary Consumption & Transformation Losses at Generator end	1.04%			
4	24MW BHP (U/S)	Unit- I	4.89	220kV BHP - Semtokha Line	53.70	L/S & U/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	23.63	
		Total	4.89	220kV BHP - Tsirang Line	-62.04	
5	40MW BHP (L/S)	Unit- I	10.47	5MVA, 66/11kV TFR	0.51	L/S & U/S Unit-II under AMP.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	19.26	
		Total	10.47	Auxiliary Consumption & Transformation Losses at Generator end	-2.86%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	16.67	Unit-I on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	16.94	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	66.16	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	16.94	Auxiliary Consumption & Transformation Losses at Gen. end	0.41%			
7	60MW KHP	Unit- I	12.50	132kV KHP - Nangkhoh Line	10.51	Unit-II on Standby. Unit-IV under AMP.
		Unit-II	0.00	132kV KHP - Kilikhar Line	13.63	
		Unit- III	12.50	5MVA, 132/11kV TFR	0.56	
		Unit- IV	0.00	132kV Motanga - Rangia Line	-1.04	
		Total	25.00	Auxiliary Consumption & Transformation Losses at Generator end	1.20%	

Note: Generation-Load Summary (MW) for March 08, 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	363.79	335.79	333.47	76.90	2.32
2	Eastern Grid	189.83	198.63	196.52	-57.70	2.11
Total		553.62	534.42	529.99	19.20	4.43

Note: Generation-Load Summary for March 08, 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	223.40	350.91	348.58	-62.27	2.33
2	Eastern Grid	217.57	44.96	43.92	107.37	1.04
Total		440.97	395.87	392.50	45.10	3.37

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 9, 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	117.56	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	126.41	400kV THP - Siliguri Line - II	81.25	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	161.51	
		Unit- V	0.00	400kV Malbase - Siliguri Line	59.58	
		Unit- VI	0.00	-	-	
		Total	243.97	Auxiliary Consumption & Transformation Losses at Generator end	0.50%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00	Unit-I & Unit-III under AMP. Unit-II under Shutdown. 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	0.00	400kV MHP - Jigmeling Line - II	86.37	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	160.63	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	72.25	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	117.88	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-15.44	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-16.87	
		-	-	80MVA, 220/132kV ICT - I (HV)	1.41	
		-	-	80MVA, 220/132kV ICT - II (HV)	1.42	
		-	-	220kV Tsirang - Jigmeling Line	-49.63	
-	-	132kV Gelephu - Salakati Line	-11.31			
Total	160.63	Auxiliary Consumption & Transformation Losses at Generator end	1.25%			
3	336MW CHP	Unit- I	51.07	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	-18.53	
		Unit- III	49.20	220kV CHP - Malbase Line- III	24.16	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	66.37	
		-	-	220kV Malbase - Birpara Line	-49.01	
		-	-	66kV CHP - Chumdo Line	20.08	
		-	-	66kV CHP - Gedu Line	7.36	
		-	-	3x3MVA, 66/11kV TFR	0.58	
		Total	100.27	Auxiliary Consumption & Transformation Losses at Generator end	0.25%	
4	24MW BHP (U/S)	Unit- I	5.10	220kV BHP - Semtokha Line	55.80	L/S & U/S unit-II under AMP
		Unit- II	0.00	66kV BHP - Lobeyasa Line	22.89	
		Total	5.10	220kV BHP - Tsirang Line	-63.42	
5	40MW BHP (L/S)	Unit- I	10.50	5MVA, 66/11kV TFR	0.42	L/S & U/S unit-II under AMP
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	18.38	
		Total	10.50	Auxiliary Consumption & Transformation Losses at Generator end	-0.58%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	16.51	Unit-I on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	16.77	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	65.79	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	16.77	Auxiliary Consumption & Transformation Losses at Generator end	0.36%			
7	60MW KHP	Unit- I	12.51	132kV KHP - Nangkhoh Line	-6.97	Unit-II on Standby. Unit-IV under AMP.
		Unit-II	0.00	132kV KHP - Kilikhar Line	31.23	
		Unit- III	12.54	5MVA, 132/11kV TFR	0.49	
		Unit- IV	0.00	132kV Motanga - Rangia Line	-2.36	
		Total	25.05	Auxiliary Consumption & Transformation Losses at Generator end	1.20%	

Note: Generation-Load Summary (MW) for March 09, 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	376.61	352.95	351.52	73.29	1.43
2	Eastern Grid	185.68	182.03	179.72	-45.98	2.31
Total		562.29	534.98	531.24	27.31	3.74

Note: Generation-Load Summary for March 09, 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	201.73	352.88	352.54	-87.15	0.34
2	Eastern Grid	228.48	40.89	39.90	123.59	0.99
Total		430.21	393.77	392.44	36.44	1.33

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.