

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	March 13, 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	118.08	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	119.09	400kV THP - Siliguri Line - II	71.74	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	162.13	
		Unit- V	0.00	400kV Malbase - Siliguri Line	10.18	
		Unit- VI	0.00	-	-	
		Total	237.17	Auxiliary Consumption & Transformation Losses at Generator end	1.39%	
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, II & III on Standby. 132kV MHP_Yurmoo Line- I not in service. 400kV JLG_ALI Line- I (Interim) under Shutdown. 400kV JLG_ALI line -II (Interim) on Standby.
		Unit-II	84.90	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	85.11	400kV MHP - Jigmeling Line - IV	85.38	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	83.38	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	133.08	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-25.02	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-23.69	
		-	-	80MVA, 220/132kV ICT - I (HV)	5.30	
		-	-	80MVA, 220/132kV ICT - II (HV)	5.35	
		-	-	220kV Tsirang - Jigmeling Line	-56.66	
-	-	132kV Gelephu - Salakati Line	-9.73			
Total	170.01	Auxiliary Consumption & Transformation Losses at Generator end	0.74%			
3	336MW CHP	Unit- I	57.08	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	-15.55	
		Unit- III	52.75	220kV CHP - Malbase Line- III	17.13	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	78.18	
		-	-	220kV Malbase - Birpara Line	-40.96	
		-	-	66kV CHP - Chumdo Line	23.77	
		-	-	66kV CHP - Gedu Line	5.52	
		-	-	3x3MVA, 66/11kV TFR	0.77	
Total	109.83	Auxiliary Consumption & Transformation Losses at Generator end	0.01%			
4	24MW BHP (U/S)	Unit- I	6.12	220kV BHP - Semtokha Line	58.96	L/S & U/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	25.67	
		Total	6.12	220kV BHP - Tsirang Line	-68.51	
5	40MW BHP (L/S)	Unit- I	10.06	5MVA, 66/11kV TFR	0.51	L/S & U/S Unit-II under AMP.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	20.07	
		Total	10.06	Auxiliary Consumption & Transformation Losses at Generator end	-2.78%	
6	126MW DHP	Unit-I	16.00	220kV DHP - Tsirang Line	15.77	Unit-II on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	66.41	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	16.00	Auxiliary Consumption & Transformation Losses at Gen. end	0.19%			
7	60MW KHP	Unit- I	15.04	132kV KHP - Nangkhor Line	12.37	Unit-II and Unit-III on Standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	16.88	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.55	
		Unit- IV	15.06	132kV Motanga - Rangia Line	9.00	
		Total	30.10	Auxiliary Consumption & Transformation Losses at Generator end	1.00%	

Note: Generation-Load Summary (MW) for March 13, 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	379.18	410.43	407.54	25.41	2.89
2	Eastern Grid	200.11	192.89	191.34	-49.44	1.55
Total		579.29	603.32	598.88	-24.03	4.44

Note: Generation-Load Summary for March 13, 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	223.57	339.29	338.48	-58.00	0.81
2	Eastern Grid	210.69	61.67	59.04	91.30	2.63
Total		434.26	400.96	397.52	33.30	3.44

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:	March 14, 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	98.95	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	119.60	400kV THP - Siliguri Line - II	65.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	148.00	
		Unit- V	0.00	400kV Malbase - Siliguri Line	44.36	
		Unit- VI	0.00	-	-	
		Total	218.55	Auxiliary Consumption & Transformation Losses at Generator end	2.54%	
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,II & III on Standby. 132kV MHP_Yurmoo Line-I not in service. 400kV JLG_ALI Line-I (Interim) under Shutdown. 400kV JLG_ALI Line-II (Interim) on Standby.
		Unit-II	80.19	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	90.42	400kV MHP - Jigmeling Line - IV	81.63	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	87.87	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	124.32	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-22.51	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-20.94	
		-	-	80MVA, 220/132kV ICT - I (HV)	6.73	
		-	-	80MVA, 220/132kV ICT - II (HV)	6.83	
		-	-	220kV Tsirang - Jigmeling Line	-38.59	
-	-	132kV Gelephu - Salakati Line	-12.24			
Total	170.61	Auxiliary Consumption & Transformation Losses at Generator end	0.65%			
3	336MW CHP	Unit- I	57.57	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	-8.27	
		Unit- III	57.58	220kV CHP - Malbase Line- III	23.76	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	71.44	
		-	-	220kV Malbase - Birpara Line	-32.80	
		-	-	66kV CHP - Chumdo Line	20.60	
		-	-	66kV CHP - Gedu Line	6.10	
		-	-	3x3MVA, 66/11kV TFR	1.10	
Total	115.15	Auxiliary Consumption & Transformation Losses at Generator end	0.36%			
4	24MW BHP (U/S)	Unit- I	5.20	220kV BHP - Semtokha Line	52.20	L/S & U/S unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	23.02	
		Total	5.20	220kV BHP - Tsirang Line	-60.16	
5	40MW BHP (L/S)	Unit- I	10.20	5MVA, 66/11kV TFR	0.41	L/S & U/S unit-II under AMP.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	18.41	
		Total	10.20	Auxiliary Consumption & Transformation Losses at Generator end	-0.45%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	17.48	Unit-I on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	17.70	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	65.90	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	17.70	Auxiliary Consumption & Transformation Losses at Generator end	0.11%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	8.91	Unit-I on Standby. Unit-II under maintenance
		Unit-II	0.00	132kV KHP - Kilikhar Line	15.34	
		Unit- III	12.48	5MVA, 132/11kV TFR	0.47	
		Unit- IV	12.50	132kV Motanga - Rangia Line	15.25	
		Total	24.98	Auxiliary Consumption & Transformation Losses at Generator end	1.04%	

Note: Generation-Load Summary (MW) for March 14, 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	366.80	337.10	331.18	68.29	5.92
2	Eastern Grid	195.59	197.44	196.07	-40.44	1.37
Total		562.39	534.54	527.25	27.85	7.29

Note: Generation-Load Summary for March 14, 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	194.48	345.15	344.22	-82.30	0.93
2	Eastern Grid	240.93	48.87	46.42	123.69	2.45
Total		435.41	394.02	390.64	41.39	3.38

NOTE: All WDC 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:

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