

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: February 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	0.00	400kV THP - Siliguri Line - I	0.00	Unit-I & IV under Shutdown. Unit-III & V on Standby. 400kV THP- Siliguri Line I under shutdown. 400kV THP- Siliguri Line IV on standby.
		Unit- II	164.23	400kV THP - Siliguri Line - II	98.84	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	190.92	
		Unit- V	0.00	400kV Malbase - Siliguri Line	71.25	
		Unit- VI	129.25	-	-	
		Total	293.48	Auxiliary Consumption & Transformation Losses at Generator end	1.27%	
2	720MW MHP	Unit-I	87.01	400kV MHP - Jigmeling Line - I	0.00	Unit-II under AMP. Unit-III under Shutdown. 400kV MHP-JLG Line I, II & III on Standby. 132kV MHP_Yurmo Line- I not in service. 400kV JLG_ALI Line- I & II (Interim) under Shutdown.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	88.14	400kV MHP - Jigmeling Line - IV	86.79	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	86.95	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	132.67	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-23.26	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-25.19	
		-	-	80MVA, 220/132kV ICT - I (HV)	3.25	
		-	-	80MVA, 220/132kV ICT - II (HV)	3.35	
		-	-	220kV Tsirang - Jigmeling Line	-59.09	
-	-	132kV Gelephu - Salakati Line	-21.10			
Total	175.15	Auxiliary Consumption & Transformation Losses at Generator end	0.81%			
3	336MW CHP	Unit- I	59.87	220kV CHP - Birpara Line- I	0.00	Unit-II & IV under AMP. 220kV CHP_Birpara I on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	-16.75	
		Unit- III	54.71	220kV CHP - Malbase Line- III	28.24	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	72.51	
		-	-	220kV Malbase - Birpara Line	-50.00	
		-	-	66kV CHP - Chumdo Line	19.06	
		-	-	66kV CHP - Gedu Line	9.54	
		-	-	3x3MVA, 66/11kV TFR	0.98	
Total	114.58	Auxiliary Consumption & Transformation Losses at Generator end	0.87%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	65.81	L/S & U/S Unit-I on Standby.
		Unit- II	5.66	66kV BHP - Lobeyasa Line	25.58	
		Total	5.66	220kV BHP - Tsirang Line	-73.87	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.56	L/S & U/S Unit-I on Standby.
		Unit- II	12.01	30MVA ICT, 220/66kV (HV)	20.47	
		Total	12.01	Auxiliary Consumption & Transformation Losses at Generator end	-2.32%	
6	126MW DHP	Unit-I	18.77	220kV DHP - Tsirang Line	18.52	Unit-II under shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	66.87	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	18.77	Auxiliary Consumption & Transformation Losses at Gen. end	0.27%			
7	60MW KHP	Unit- I	15.08	132kV KHP - Nangkhoh Line	1.60	Unit-II & Unit-III on Standby. Unit-IV under AMP
		Unit-II	0.00	132kV KHP - Kilikhar Line	12.52	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.65	
		Unit- IV	0.00	132kV Motanga - Rangia Line	-10.11	
		Total	15.08	Auxiliary Consumption & Transformation Losses at Generator end	2.06%	

Note: Generation-Load Summary (MW) for February 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	444.50	400.25	395.89	103.34	4.36
2	Eastern Grid	190.23	210.80	209.08	-79.66	1.72
Total		634.73	611.05	604.97	23.68	6.08

Note: Generation-Load Summary for February 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	218.01	361.09	358.88	-72.91	2.21
2	Eastern Grid	229.90	64.50	62.53	95.23	1.97
Total		447.91	425.59	421.41	22.32	4.18

Note: All 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: February 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	0.00	400kV THP - Siliguri Line - I	0.00	Unit-I & IV under Shutdown. Unit-III & V on Standby. 400kV THP- Siliguri Line I under shutdown and IV on standby.
		Unit- II	148.24	400kV THP - Siliguri Line - II	98.84	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	194.47	
		Unit- V	0.00	400kV Malbase - Siliguri Line	71.27	
		Unit- VI	149.77	-	-	
		Total	298.01	Auxiliary Consumption & Transformation Losses at Generator end	1.58%	
2	720MW MHP	Unit-I	71.21	400kV MHP - Jigmeling Line - I	0.00	Unit-II under AMP. Unit-III under Shutdown. 400kV MHP-JLG Line I, II & III on Standby. 132kV MHP_Yurmo Line-I not in service. 400kV JLG_ALI Line-I & II (Interim) under Shutdown.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	70.02	400kV MHP - Jigmeling Line - IV	58.22	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	81.94	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	127.68	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-32.86	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-34.24	
		-	-	80MVA, 220/132kV ICT - I (HV)	5.15	
		-	-	80MVA, 220/132kV ICT - II (HV)	5.27	
		-	-	220kV Tsirang - Jigmeling Line	-49.33	
-	-	132kV Gelephu - Salakati Line	-13.83			
Total	141.23	Auxiliary Consumption & Transformation Losses at Generator end	0.76%			
3	336MW CHP	Unit- I	51.25	220kV CHP - Birpara Line- I	0.00	Unit-II and IV under AMP. 220kV CHP_Birpara I on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	-13.17	
		Unit- III	65.53	220kV CHP - Malbase Line- III	29.59	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	70.98	
		-	-	220kV Malbase - Birpara Line	-43.68	
		-	-	66kV CHP - Chumdo Line	17.48	
		-	-	66kV CHP - Gedu Line	10.20	
		-	-	3x3MVA, 66/11kV TFR	0.72	
Total	116.78	Auxiliary Consumption & Transformation Losses at Generator end	0.84%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	58.93	L/S & U/S unit-I on Standby
		Unit- II	5.90	66kV BHP - Lobeyasa Line	24.24	
		Total	5.90	220kV BHP - Tsirang Line	-64.64	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.42	L/S & U/S unit-I on Standby
		Unit- II	12.20	30MVA ICT, 220/66kV (HV)	18.97	
		Total	12.20	Auxiliary Consumption & Transformation Losses at Generator end	-4.70%	
6	126MW DHP	Unit-I	18.76	220kV DHP - Tsirang Line	18.55	Unit-II under Shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	66.64	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	18.76	Auxiliary Consumption & Transformation Losses at Generator end	0.05%			
7	60MW KHP	Unit- I	10.10	132kV KHP - Nangkhoh Line	6.84	Unit-III on Standby. Unit-IV under AMP.
		Unit-II	10.08	132kV KHP - Kilikhar Line	12.46	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.64	
		Unit- IV	0.00	132kV Motanga - Rangia Line	-2.58	
		Total	20.18	Auxiliary Consumption & Transformation Losses at Generator end	1.19%	

Note: Generation-Load Summary (MW) for February 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	451.65	387.72	382.88	113.26	4.84
2	Eastern Grid	161.41	195.59	194.28	-83.51	1.31
Total		613.06	583.31	577.16	29.75	6.15

Note: Generation-Load Summary for February 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	230.28	370.38	367.97	-72.55	2.41
2	Eastern Grid	224.50	50.28	49.41	106.67	0.87
Total		454.78	420.66	417.38	34.12	3.28

Note: BHP 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.
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