

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: March 16, 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	118.93	400kV THP - Siliguri Line - I	0.00	Unit-IV, V & VI under AMP. Unit-III on Standby. 400kV THP- Siliguri Line I & IV on Standby.
		Unit- II	79.14	400kV THP - Siliguri Line - II	56.28	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	139.53	
		Unit- V	0.00	400kV Malbase - Siliguri Line	34.65	
		Unit- VI	0.00	-	-	
		Total	198.07	Auxiliary Consumption & Transformation Losses at Generator end	1.14%	
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	79.84	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	120.09	400kV MHP - Jigmeling Line - IV	120.86	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	77.38	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	116.77	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	2.11	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.48	
		-	-	80MVA, 220/132kV ICT - I (HV)	2.82	
		-	-	80MVA, 220/132kV ICT - II (HV)	2.94	
		-	-	220kV Tsirang - Jigmeling Line	-67.57	
-	-	132kV Gelephu - Salakati Line	-12.49			
Total	199.93	Auxiliary Consumption & Transformation Losses at Generator end	0.85%			
3	336MW CHP	Unit- I	19.01	220kV CHP - Birpara Line- I	0.00	Unit-II Under Vibration testing. Unit-IV under AMP. 220kV CHP-Birpara Line-I on Standby.
		Unit- II	42.92	220kV CHP - Birpara Line- II	-19.22	
		Unit- III	26.09	220kV CHP - Malbase Line- III	13.61	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	63.22	
		-	-	220kV Malbase - Birpara Line	-42.21	
		-	-	66kV CHP - Chumdo Line	23.81	
		-	-	66kV CHP - Gedu Line	4.37	
		-	-	3x3MVA, 66/11kV TFR	0.84	
Total	88.02	Auxiliary Consumption & Transformation Losses at Generator end	1.58%			
4	24MW BHP (U/S)	Unit- I	4.90	220kV BHP - Semtokha Line	70.76	L/S & U/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeysa Line	25.28	
		Total	4.90	220kV BHP - Tsirang Line	-81.07	
5	40MW BHP (L/S)	Unit- I	10.40	5MVA, 66/11kV TFR	0.51	L/S & U/S Unit-II under AMP.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	21.05	
		Total	10.40	Auxiliary Consumption & Transformation Losses at Generator end	-1.18%	
6	126MW DHP	Unit-I	16.80	220kV DHP - Tsirang Line	16.56	Unit-II on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	44.68	
		-	-	5MVA, 220/33kV TFR	0.23	
Total	16.80	Auxiliary Consumption & Transformation Losses at Gen. end	0.06%			
7	60MW KHP	Unit- I	15.05	132kV KHP - Nangkor Line	12.95	Unit-III on Standby and Unit-II under AMP
		Unit-II	0.00	132kV KHP - Kilikhar Line	16.30	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.59	
		Unit- IV	15.14	132kV Motanga - Rangia Line	14.99	
		Total	30.19	Auxiliary Consumption & Transformation Losses at Generator end	1.16%	

Note: Generation-Load Summary (MW) for March 16, 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	318.19	356.26	352.78	29.50	3.48
2	Eastern Grid	230.12	157.46	155.42	5.09	2.04
Total		548.31	513.72	508.20	34.59	5.52

Note: Generation-Load Summary for March 16, 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	208.02	357.45	355.29	-79.02	2.16
2	Eastern Grid	241.58	56.47	54.21	114.70	2.26
Total		449.60	413.92	409.50	35.68	4.42

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 17, 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	108.08	400kV THP - Siliguri Line - I	0.00	Unit-IV, V & VI under AMP. Unit-III on Standby. 400kV THP- Siliguri Line I & IV on standby
		Unit- II	136.00	400kV THP - Siliguri Line - II	78.96	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	163.36	
		Unit- V	0.00	400kV Malbase - Siliguri Line	53.12	
		Unit- VI	0.00	-	-	
		Total	244.08	Auxiliary Consumption & Transformation Losses at Generator end	0.72%	
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	60.19	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	70.43	400kV MHP - Jigmeling Line - IV	56.29	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	72.38	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	103.73	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-22.99	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-24.47	
		-	-	80MVA, 220/132kV ICT - I (HV)	4.17	
		-	-	80MVA, 220/132kV ICT - II (HV)	4.30	
		-	-	220kV Tsirang - Jigmeling Line	-50.83	
-	-	132kV Gelephu - Salakati Line	-12.01			
Total	130.62	Auxiliary Consumption & Transformation Losses at Generator end	1.49%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I on Standby. Unit IV under AMP. 220kV CHP-Birpara Line-I on Standby.
		Unit- II	58.28	220kV CHP - Birpara Line- II	-10.45	
		Unit- III	51.95	220kV CHP - Malbase Line- III	24.34	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	67.19	
		-	-	220kV Malbase - Birpara Line	-35.28	
		-	-	66kV CHP - Chumdo Line	21.02	
		-	-	66kV CHP - Gedu Line	6.60	
		-	-	3x3MVA, 66/11kV TFR	0.59	
Total	110.23	Auxiliary Consumption & Transformation Losses at Generator end	0.85%			
4	24MW BHP (U/S)	Unit- I	4.83	220kV BHP - Semtokha Line	57.31	L/S & U/S unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeysa Line	23.08	
		Total	4.83	220kV BHP - Tsirang Line	-65.33	
5	40MW BHP (L/S)	Unit- I	10.25	5MVA, 66/11kV TFR	0.42	L/S & U/S unit-II under AMP.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	18.68	
		Total	10.25	Auxiliary Consumption & Transformation Losses at Generator end	-2.65%	
6	126MW DHP	Unit-I	17.14	220kV DHP - Tsirang Line	16.89	Unit-II on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	44.76	
		-	-	5MVA, 220/33kV TFR	0.20	
		Total	17.14	Auxiliary Consumption & Transformation Losses at Generator end	0.29%	
7	60MW KHP	Unit- I	10.26	132kV KHP - Nangkor Line	7.57	Unit-IV on Standby. Unit-II under AMP.
		Unit-II	0.00	132kV KHP - Kilikhar Line	12.09	
		Unit- III	10.09	5MVA, 132/11kV TFR	0.45	
		Unit- IV	0.00	132kV Motanga - Rangia Line	2.01	
		Total	20.35	Auxiliary Consumption & Transformation Losses at Generator end	1.18%	

Note: Generation-Load Summary (MW) for March 17, 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	386.53	351.01	348.66	86.35	2.35
2	Eastern Grid	150.97	157.60	155.41	-57.46	2.19
Total		537.50	508.61	504.07	28.89	4.54

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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	339.67	354.57	350.62	42.40	3.95
2	Eastern Grid	251.00	54.24	53.23	139.46	1.01
Total		590.67	408.81	403.85	181.86	4.96

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- 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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