

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	March 12, 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	142.39	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	98.81	400kV THP - Siliguri Line - II	76.21	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	163.43	
		Unit- V	0.00	400kV Malbase - Siliguri Line	50.46	
		Unit- VI	0.00	-	-	
		Total	241.20	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, 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	84.79	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	105.13	400kV MHP - Jigmeling Line - IV	103.94	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	85.25	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	132.41	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-15.19	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-13.59	
		-	-	80MVA, 220/132kV ICT - I (HV)	3.73	
		-	-	80MVA, 220/132kV ICT - II (HV)	3.83	
		-	-	220kV Tsirang - Jigmeling Line	-57.62	
-	-	132kV Gelephu - Salakati Line	-12.17			
Total	189.92	Auxiliary Consumption & Transformation Losses at Generator end	0.38%			
3	336MW CHP	Unit- I	51.25	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	-21.02	
		Unit- III	44.96	220kV CHP - Malbase Line- III	15.31	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	71.88	
		-	-	220kV Malbase - Birpara Line	-46.55	
		-	-	66kV CHP - Chumdo Line	23.32	
		-	-	66kV CHP - Gedu Line	5.56	
		-	-	3x3MVA, 66/11kV TFR	0.78	
Total	96.21	Auxiliary Consumption & Transformation Losses at Generator end	0.39%			
4	24MW BHP (U/S)	Unit- I	4.70	220kV BHP - Semtokha Line	60.50	L/S & U/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	24.65	
		Total	4.70	220kV BHP - Tsirang Line	-70.71	
5	40MW BHP (L/S)	Unit- I	9.80	5MVA, 66/11kV TFR	0.49	L/S & U/S Unit-II under AMP.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	20.53	
		Total	9.80	Auxiliary Consumption & Transformation Losses at Generator end	-2.97%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	16.21	Unit-I on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	16.47	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	66.27	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	16.47	Auxiliary Consumption & Transformation Losses at Gen. end	0.36%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	14.54	Unit-I and Unit-III on Standby.
		Unit-II	15.07	132kV KHP - Kilikhar Line	14.65	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.67	
		Unit- IV	15.04	132kV Motanga - Rangia Line	1.09	
		Total	30.11	Auxiliary Consumption & Transformation Losses at Generator end	0.83%	

Note: Generation-Load Summary (MW) for March 12, 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	368.38	366.90	365.33	59.10	1.57
2	Eastern Grid	220.03	202.27	201.29	-39.86	0.98
Total		588.41	569.17	566.62	19.24	2.55

Note: Generation-Load Summary for March 12, 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	226.06	340.73	339.28	-54.40	1.45
2	Eastern Grid	201.35	58.39	57.29	82.69	1.10
Total		427.41	399.12	396.57	28.29	2.55

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 13, 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	59.42	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	138.91	400kV THP - Siliguri Line - II	57.17	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	140.29	
		Unit- V	0.00	400kV Malbase - Siliguri Line	34.13	
		Unit- VI	0.00	-	-	
		Total	198.33	Auxiliary Consumption & Transformation Losses at Generator end	0.44%	
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	90.06	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	92.31	400kV MHP - Jigmeling Line - IV	97.56	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	83.20	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	124.49	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-13.47	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-12.14	
		-	-	80MVA, 220/132kV ICT - I (HV)	5.15	
		-	-	80MVA, 220/132kV ICT - II (HV)	5.25	
		-	-	220kV Tsirang - Jigmeling Line	48.52	
-	-	132kV Gelephu - Salakati Line	-9.24			
Total	182.37	Auxiliary Consumption & Transformation Losses at Generator end	0.88%			
3	336MW CHP	Unit- I	54.04	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	-10.70	
		Unit- III	56.21	220kV CHP - Malbase Line- III	25.16	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	67.54	
		-	-	220kV Malbase - Birpara Line	-37.46	
		-	-	66kV CHP - Chumdo Line	20.54	
		-	-	66kV CHP - Gedu Line	7.15	
		-	-	3x3MVA, 66/11kV TFR	0.90	
Total	110.25	Auxiliary Consumption & Transformation Losses at Generator end	-0.31%			
4	24MW BHP (U/S)	Unit- I	4.75	220kV BHP - Semtokha Line	54.36	L/S & U/S unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	23.42	
		Total	4.75	220kV BHP - Tsirang Line	-62.95	
5	40MW BHP (L/S)	Unit- I	10.01	5MVA, 66/11kV TFR	0.45	L/S & U/S unit-II under AMP.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	19.06	
		Total	10.01	Auxiliary Consumption & Transformation Losses at Generator end	-3.52%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	16.00	Unit-I on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	16.25	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	63.60	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	16.25	Auxiliary Consumption & Transformation Losses at Generator end	0.31%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	6.67	Unit-I and Unit-III on Standby.
		Unit-II	10.07	132kV KHP - Kilikhar Line	12.72	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.55	
		Unit- IV	10.08	132kV Motanga - Rangia Line	6.23	
		Total	20.15	Auxiliary Consumption & Transformation Losses at Generator end	1.04%	

Note: Generation-Load Summary (MW) for March 13, 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	339.59	247.93	247.87	43.14	0.06
2	Eastern Grid	202.52	279.66	277.84	-28.62	1.82
Total		542.11	527.59	525.71	14.52	1.88

Note: Generation-Load Summary for March 13, 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	241.00	341.05	338.72	-39.57	2.33
2	Eastern Grid	300.96	55.15	52.31	185.33	2.84
Total		541.96	396.20	391.03	145.76	5.17

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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