

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: March 17, 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	99.29	400kV THP - Siliguri Line - I	51.94	Unit-IV, V & VI under AMP. Unit-III on Standby. 400kV THP- Siliguri Line IV on Standby.
		Unit- II	148.99	400kV THP - Siliguri Line - II	51.71	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	142.84	
		Unit- V	0.00	400kV Malbase - Siliguri Line	29.76	
		Unit- VI	0.00	-	-	
		Total	248.28	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	79.71	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	75.32	400kV MHP - Jigmeling Line - IV	81.91	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	71.74	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	116.03	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-17.03	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-18.45	
		-	-	80MVA, 220/132kV ICT - I (HV)	2.42	
		-	-	80MVA, 220/132kV ICT - II (HV)	2.51	
		-	-	220kV Tsirang - Jigmeling Line	-65.77	
-	-	132kV Gelephu - Salakati Line	-11.09			
Total	155.03	Auxiliary Consumption & Transformation Losses at Generator end	0.89%			
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	49.39	220kV CHP - Birpara Line- II	-19.38	
		Unit- III	41.39	220kV CHP - Malbase Line- III	12.04	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	67.25	
		-	-	220kV Malbase - Birpara Line	-40.80	
		-	-	66kV CHP - Chumdo Line	24.07	
		-	-	66kV CHP - Gedu Line	4.75	
		-	-	3x3MVA, 66/11kV TFR	0.91	
Total	90.78	Auxiliary Consumption & Transformation Losses at Generator end	1.26%			
4	24MW BHP (U/S)	Unit- I	4.90	220kV BHP - Semtokha Line	67.70	L/S & U/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeysa Line	25.08	
		Total	4.90	220kV BHP - Tsirang Line	-77.80	
5	40MW BHP (L/S)	Unit- I	10.40	5MVA, 66/11kV TFR	0.59	L/S & U/S Unit-II under AMP.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	20.98	
		Total	10.40	Auxiliary Consumption & Transformation Losses at Generator end	-1.76%	
6	126MW DHP	Unit-I	15.81	220kV DHP - Tsirang Line	15.57	Unit-II on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	45.75	
		-	-	5MVA, 220/33kV TFR	0.23	
Total	15.81	Auxiliary Consumption & Transformation Losses at Gen. end	0.06%			
7	60MW KHP	Unit- I	15.14	132kV KHP - Nangkhoh Line	14.73	Unit-II under AMP and Unit-IV on Standby. 132kV Motanga-Rangia Line under Shutdown.
		Unit-II	0.00	132kV KHP - Kilikhar Line	14.88	
		Unit- III	15.09	5MVA, 132/11kV TFR	0.29	
		Unit- IV	0.00	132kV Motanga - Rangia Line	0.00	
		Total	30.23	Auxiliary Consumption & Transformation Losses at Generator end	1.09%	

Note: Generation-Load Summary (MW) for March 17, 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	370.17	362.71	360.04	73.23	2.67
2	Eastern Grid	185.26	166.06	164.35	-46.57	1.71
Total		555.43	528.77	524.39	26.66	4.38

Note: Generation-Load Summary for March 17, 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	234.14	349.16	348.02	-61.52	1.14
2	Eastern Grid	262.51	57.86	56.54	151.15	1.32
Total		496.65	407.02	404.56	89.63	2.46

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 18, 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	69.05	400kV THP - Siliguri Line - I	64.60	Unit-IV, V & VI under AMP. Unit-III on Standby. 400kV THP- Siliguri Line II & IV on standby .
		Unit- II	128.46	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	131.70	
		Unit- V	0.00	400kV Malbase - Siliguri Line	45.62	
		Unit- VI	0.00	-	-	
		Total	197.51	Auxiliary Consumption & Transformation Losses at Generator end	0.61%	
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	90.11	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	70.42	400kV MHP - Jigmeling Line - IV	83.84	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	75.06	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	99.66	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-7.70	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-9.21	
		-	-	80MVA, 220/132kV ICT - I (HV)	3.84	
		-	-	80MVA, 220/132kV ICT - II (HV)	3.97	
		-	-	220kV Tsirang - Jigmeling Line	-47.34	
-	-	132kV Gelephu - Salakati Line	-12.80			
Total	160.53	Auxiliary Consumption & Transformation Losses at Generator end	1.02%			
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	57.49	220kV CHP - Birpara Line- II	-7.68	
		Unit- III	52.17	220kV CHP - Malbase Line- III	29.03	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	62.86	
		-	-	220kV Malbase - Birpara Line	-34.10	
		-	-	66kV CHP - Chumdo Line	15.43	
		-	-	66kV CHP - Gedu Line	8.50	
		-	-	3x3MVA, 66/11kV TFR	0.74	
Total	109.66	Auxiliary Consumption & Transformation Losses at Generator end	0.71%			
4	24MW BHP (U/S)	Unit- I	5.20	220kV BHP - Semtokha Line	55.30	L/S & U/S unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeysa Line	22.82	
		Total	5.20	220kV BHP - Tsirang Line	-62.71	
5	40MW BHP (L/S)	Unit- I	10.30	5MVA, 66/11kV TFR	0.38	L/S & U/S unit-II under AMP.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	18.13	
		Total	10.30	Auxiliary Consumption & Transformation Losses at Generator end	-1.87%	
6	126MW DHP	Unit-I	17.88	220kV DHP - Tsirang Line	17.67	Unit-II on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	45.16	
		-	-	5MVA, 220/33kV TFR	0.18	
Total	17.88	Auxiliary Consumption & Transformation Losses at Generator end	0.17%			
7	60MW KHP	Unit- I	11.02	132kV KHP - Nangkhor Line	9.64	Unit-II under AMP and Unit-III on Standby. 132kV Motanga-Rangia Line under Shutdown.
		Unit-II	0.00	132kV KHP - Kilikhar Line	11.91	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.36	
		Unit- IV	11.04	132kV Motanga - Rangia Line	0.00	
		Total	22.06	Auxiliary Consumption & Transformation Losses at Generator end	0.68%	

Note: Generation-Load Summary (MW) for March 18, 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	340.55	319.45	317.72	68.44	1.73
2	Eastern Grid	182.59	164.96	163.18	-29.71	1.78
Total		523.14	484.41	480.90	38.73	3.51

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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	463.14	342.30	338.28	164.35	4.02
2	Eastern Grid	280.97	51.08	49.84	186.38	1.24
Total		744.11	393.38	388.12	350.73	5.26

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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