

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	March 2, 2022
Hours:	18:00 Hours

Date	Time	Load(MW)
12-Jan-22	18:00hrs	492.25

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	THP under total Shutdown.
		Unit- II	0.00	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	0.00	
		Unit- V	0.00	400kV Malbase - Siliguri Line	-39.27	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	210.28	Unit-I & II under Annual Maintenance .400kV MHP-JLG Line III under Annual Maintenance . 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG-ALI I (Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	110.86	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	100.50	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	90.07	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	45.81	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	70.69	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	14.88	
		-	-	80MVA, 220/132kV ICT - II (HV)	15.10	
		-	-	220kV Tsirang - Jigmeling Line	-78.55	
-	-	132kV Gelephu - Salakati Line	-12.50			
Total	211.36	Auxiliary Consumption & Transformation Losses at Generator end	0.51%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	2.84	Unit-I under maintenance. Unit IV on standby
		Unit- II	83.02	220kV CHP - Birpara Line- II	2.85	
		Unit- III	79.84	220kV CHP - Malbase Line- III	67.83	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	64.85	
		-	-	220kV Malbase - Birpara Line	-46.97	
		-	-	66kV CHP - Chumdo Line	18.62	
		-	-	66kV CHP - Gedu Line	2.38	
		-	-	3x3MVA, 66/11kV TFR	1.62	
Total	162.86	Auxiliary Consumption & Transformation Losses at Generator end	1.15%			
4	24MW BHP (U/S)	Unit- I	6.90	220kV BHP - Semtokha Line	69.00	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	25.21	
		Total	6.90	220kV BHP - Tsirang Line	-74.44	
5	40MW BHP (L/S)	Unit- I	13.00	5MVA, 66/11kV TFR	0.62	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	16.91	
		Total	13.00	Auxiliary Consumption & Transformation Losses at Generator end	-2.46%	
6	126MW DHP	Unit-I	28.24	220kV DHP - Tsirang Line	0.00	Unit-II under Annual Maintenance. 220kV DHP_Tsirang Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	28.02	
		-	-	220kV Jigmeling - Dagapela Line	-18.81	
		-	-	5MVA, 220/33kV TFR	0.15	
Total	28.24	Auxiliary Consumption & Transformation Losses at Gen. end	0.25%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	9.83	Unit-I under AMP & Unit-IV on Standby.
		Unit-II	12.50	132kV KHP - Kilikhar Line	14.32	
		Unit- III	12.58	5MVA, 132/11kV TFR	0.61	
		Unit- IV	0.00	132kV Motanga - Rangia Line	-2.31	
		Total	25.08	Auxiliary Consumption & Transformation Losses at Generator end	1.28%	

Note: Generation-Load Summary (MW) for March 02, 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	211.00	370.10	368.65	-80.55	1.45
2	Eastern Grid	236.44	56.20	54.80	101.69	1.40
Total		447.44	426.30	423.45	21.14	2.85

Note: Generation-Load Summary for March 02, 2021 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	352.52	237.29	236.01	90.08	1.28
2	Eastern Grid	169.36	74.90	74.29	119.61	0.61
Total		521.88	312.19	310.30	209.69	1.89

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.
- 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 3, 2022
Hours:	09:00 Hours

Date	Time	Load(MW)
12-Jan-22	18:00hrs	492.25

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	THP under total shutdown.
		Unit- II	0.00	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	0.00	
		Unit- V	0.00	400kV Malbase - Siliguri Line	-42.57	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	199.52	Unit-I & II under Annual Maintenance. 400kV MHP-JLG Line III under Annual Maintenance. 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG-ALI I (Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	80.19	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	120.09	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	87.89	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	42.90	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	66.37	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	19.75	
		-	-	80MVA, 220/132kV ICT - II (HV)	20.11	
		-	-	220kV Tsirang - Jigmeling Line	-67.23	
-	-	132kV Gelephu - Salakati Line	-11.58			
Total	200.28	Auxiliary Consumption & Transformation Losses at Generator end	0.38%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	7.89	Unit-IV standby. Unit-I under Annual Maintenance.
		Unit- II	88.04	220kV CHP - Birpara Line- II	7.77	
		Unit- III	78.70	220kV CHP - Malbase Line- III	70.24	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	57.96	
		-	-	220kV Malbase - Birpara Line	-40.90	
		-	-	66kV CHP - Chumdo Line	16.82	
		-	-	66kV CHP - Gedu Line	2.40	
		-	-	3x3MVA, 66/11kV TFR	1.46	
Total	166.74	Auxiliary Consumption & Transformation Losses at Generator end	1.32%			
4	24MW BHP (U/S)	Unit- I	7.70	220kV BHP - Semtokha Line	64.30	U/S Unit-II & L/S Unit-II under AMP.
		Unit- II	0.00	66kV BHP - Lobeysa Line	23.63	
		Total	7.70	220kV BHP - Tsirang Line	-60.40	
5	40MW BHP (L/S)	Unit- I	20.20	5MVA, 66/11kV TFR	0.60	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	16.65	
		Total	20.20	Auxiliary Consumption & Transformation Losses at Generator end	-0.82%	
6	126MW DHP	Unit-I	29.26	220kV DHP - Tsirang Line	0.00	Unit-II under Annual maintenance. 220kV DHP_Tsirang Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	29.03	
		-	-	220kV Jigmeling - Dagapela Line	-20.05	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	29.26	Auxiliary Consumption & Transformation Losses at Generator end	0.10%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	8.54	Unit-I under AMP. Unit-III on Standby.
		Unit-II	12.52	132kV KHP - Kilikhar Line	15.55	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.50	
		Unit- IV	12.56	132kV Motanga - Rangia Line	4.71	
		Total	25.08	Auxiliary Consumption & Transformation Losses at Generator end	1.95%	

Note: Generation-Load Summary (MW) for March 03, 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	223.90	358.94	356.94	-67.81	2.00
2	Eastern Grid	225.36	55.73	54.48	102.40	1.25
Total		449.26	414.67	411.42	34.59	3.25

Note: Generation-Load Summary for March 03, 2021 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	259.31	229.24	226.81	22.62	2.43
2	Eastern Grid	140.52	43.34	41.85	104.63	1.49
Total		399.83	272.58	268.66	127.25	3.92

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.
- ii) The clocks of all the locations are not synchronized.

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