

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: February 1, 2023
Hours: 18:00 Hours

Date: 28-Dec-22 **Time:** 18:03:26hrs **Load(MW):** 629.23

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 & IV on Standby.
		Unit- II	140.07	400kV THP - Siliguri Line - II	83.70	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	163.02	
		Unit- V	0.00	400kV Malbase - Siliguri Line	60.44	
		Unit- VI	110.25	-	-	
		Total	250.32	Auxiliary Consumption & Transformation Losses at Generator end	1.44%	
2	720MW MHP	Unit-I	60.25	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- II (Direct) on Standby. 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	55.37	400kV MHP - Jigmeling Line - IV	38.79	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	76.58	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	117.14	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-79.21	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	3.43	
		-	-	80MVA, 220/132kV ICT - II (HV)	3.53	
		-	-	220kV Tsirang - Jigmeling Line	-42.23	
-	-	132kV Gelephu - Salakati Line	-18.74			
Total	115.62	Auxiliary Consumption & Transformation Losses at Generator end	0.22%			
3	336MW CHP	Unit- I	60.98	220kV CHP - Birpara Line- I	-4.23	Unit-II under AMP. Unit-III on Standby. 220kV CHP_Birpara Line II on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	17.03	
		Unit- IV	64.01	220kV CHP - Semtokha Line- IV	84.79	
		-	-	220kV Malbase - Birpara Line	-21.53	
		-	-	66kV CHP - Chumdo Line	22.70	
		-	-	66kV CHP - Gedu Line	4.90	
		-	-	3x3MVA, 66/11kV TFR	0.90	
Total	124.99	Auxiliary Consumption & Transformation Losses at Generator end	-0.88%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	51.65	L/S & U/S Unit-I on Standby.
		Unit- II	6.00	66kV BHP - Lobeyasa Line	24.70	
		Total	6.00	220kV BHP - Tsirang Line	-58.03	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.63	L/S & U/S Unit-I on Standby.
		Unit- II	12.80	30MVA ICT, 220/66kV (HV)	19.44	
		Total	12.80	Auxiliary Consumption & Transformation Losses at Generator end	-0.80%	
6	126MW DHP	Unit-I	19.76	220kV DHP - Tsirang Line	19.54	Unit-II under shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	67.04	
		-	-	5MVA, 220/33kV TFR	0.21	
Total	19.76	Auxiliary Consumption & Transformation Losses at Gen. end	0.05%			
7	60MW KHP	Unit- I	12.55	132kV KHP - Nangkhoh Line	8.05	Unit-II on Standby. Unit-IV under AMP
		Unit-II	0.00	132kV KHP - Kilikhar Line	15.99	
		Unit- III	12.53	5MVA, 132/11kV TFR	0.77	
		Unit- IV	0.00	132kV Motanga - Rangia Line	1.82	
		Total	25.08	Auxiliary Consumption & Transformation Losses at Generator end	1.08%	

Note: Generation-Load Summary (MW) for February 01, 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	413.87	337.72	335.36	118.38	2.36
2	Eastern Grid	140.70	194.60	194.08	-96.13	0.52
Total		554.57	532.32	529.44	22.25	2.88

Note: Generation-Load Summary for February 01, 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	214.99	339.63	337.81	-69.17	1.82
2	Eastern Grid	247.07	100.87	97.52	90.73	3.35
Total		462.06	440.50	435.33	21.56	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.
- 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:	February 2, 2023
Hours:	09:00 Hours

Date	Time	Load(MW)
28-Dec-22	18:03:26hrs	629.23

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 & IV on Standby..
		Unit- II	104.85	400kV THP - Siliguri Line - II	76.65	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	154.63	
		Unit- V	0.00	400kV Malbase - Siliguri Line	53.21	
		Unit- VI	129.58	-	-	
		Total	234.43	Auxiliary Consumption & Transformation Losses at Generator end	1.34%	
2	720MW MHP	Unit-I	70.26	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- II (Direct) on Standby. 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	65.27	400kV MHP - Jigmeling Line - IV	62.34	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	72.12	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	113.91	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-53.22	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	3.25	
		-	-	80MVA, 220/132kV ICT - II (HV)	3.33	
		-	-	220kV Tsirang - Jigmeling Line	-42.64	
-	-	132kV Gelephu - Salakati Line	-14.33			
Total	135.53	Auxiliary Consumption & Transformation Losses at Generator end	0.79%			
3	336MW CHP	Unit- I	54.16	220kV CHP - Birpara Line- I	-13.77	Unit-III on Standby. Unit-II under AMP. 220kV CHP_Birpara Line II on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	8.68	
		Unit- IV	47.20	220kV CHP - Semtokha Line- IV	78.19	
		-	-	220kV Malbase - Birpara Line	-29.09	
		-	-	66kV CHP - Chumdo Line	21.33	
		-	-	66kV CHP - Gedu Line	5.41	
		-	-	3x3MVA, 66/11kV TFR	0.69	
Total	101.36	Auxiliary Consumption & Transformation Losses at Generator end	0.82%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	53.00	L/S & U/S unit-I on Standby
		Unit- II	6.10	66kV BHP - Lobeyasa Line	24.25	
		Total	6.10	220kV BHP - Tsirang Line	-59.13	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.48	L/S & U/S unit-I on Standby
		Unit- II	12.37	30MVA ICT, 220/66kV (HV)	18.82	
		Total	12.37	Auxiliary Consumption & Transformation Losses at Generator end	-0.70%	
6	126MW DHP	Unit-I	19.71	220kV DHP - Tsirang Line	19.49	Unit-II under Shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	66.65	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	19.71	Auxiliary Consumption & Transformation Losses at Generator end	0.10%			
7	60MW KHP	Unit- I	15.09	132kV KHP - Nangkhoh Line	13.49	Unit-II on Standby. Unit-IV under AMP.
		Unit-II	0.00	132kV KHP - Kilikhar Line	15.53	
		Unit- III	15.07	5MVA, 132/11kV TFR	0.68	
		Unit- IV	0.00	132kV Motanga - Rangia Line	6.91	
		Total	30.16	Auxiliary Consumption & Transformation Losses at Generator end	1.53%	

Note: Generation-Load Summary (MW) for February 02, 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	373.97	329.61	325.74	87.00	3.87
2	Eastern Grid	165.69	183.69	182.16	-60.64	1.53
Total		539.66	513.30	507.90	26.36	5.40

Note: Generation-Load Summary for February 02, 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	214.20	350.54	348.43	-87.32	2.11
2	Eastern Grid	247.07	88.99	85.32	109.06	3.67
Total		461.27	439.53	433.75	21.74	5.78

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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