

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: January 27, 2023
Hours: 18:00 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	104.50	400kV THP - Siliguri Line - II	71.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	158.00	
		Unit- V	0.00	400kV Malbase - Siliguri Line	51.64	
		Unit- VI	140.60	-	-	
		Total	245.10	Auxiliary Consumption & Transformation Losses at Generator end	6.57%	
2	720MW MHP	Unit-I	90.81	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 (Interim) on Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	85.07	400kV MHP - Jigmeling Line - IV	92.49	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	81.70	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	122.80	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-13.09	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-23.68	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	5.12	
		-	-	80MVA, 220/132kV ICT - II (HV)	5.12	
		-	-	220kV Tsirang - Jigmeling Line	-51.16	
-	-	132kV Gelephu - Salakati Line	-12.20			
Total	175.88	Auxiliary Consumption & Transformation Losses at Generator end	0.96%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	-9.10	Unit-I on Standby. Unit-II under Shutdown. 220kV CHP_Birpara Line II on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	0.00	
		Unit- III	71.20	220kV CHP - Malbase Line- III	29.86	
		Unit- IV	59.20	220kV CHP - Semtokha Line- IV	76.86	
		-	-	220kV Malbase - Birpara Line	-36.64	
		-	-	66kV CHP - Chumdo Line	22.90	
		-	-	66kV CHP - Gedu Line	6.80	
		-	-	3x3MVA, 66/11kV TFR	1.69	
Total	130.40	Auxiliary Consumption & Transformation Losses at Generator end	1.07%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	59.80	L/S & U/S Unit-I on Standby.
		Unit- II	6.40	66kV BHP - Lobeyasa Line	26.18	
		Total	6.40	220kV BHP - Tsirang Line	-67.00	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.70	L/S & U/S Unit-I on Standby.
		Unit- II	13.00	30MVA ICT, 220/66kV (HV)	20.66	
		Total	13.00	Auxiliary Consumption & Transformation Losses at Generator end	-1.44%	
6	126MW DHP	Unit-I	20.77	220kV DHP - Tsirang Line	20.56	Unit-II under shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	67.28	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	20.77	Auxiliary Consumption & Transformation Losses at Gen. end	0.05%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	7.74	Unit-I & IV on Standby.
		Unit-II	12.57	132kV KHP - Kilikhar Line	16.24	
		Unit- III	12.56	5MVA, 132/11kV TFR	0.60	
		Unit- IV	0.00	132kV Motanga - Rangia Line	2.57	
		Total	25.13	Auxiliary Consumption & Transformation Losses at Generator end	2.19%	

Note: Generation-Load Summary (MW) for January 27, 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	415.67	389.93	372.71	76.90	17.22
2	Eastern Grid	201.01	196.25	194.01	-46.40	2.24
Total		616.68	586.18	566.72	30.50	19.46

Note: Generation-Load Summary for January 27, 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	216.54	364.68	362.57	-88.88	2.11
2	Eastern Grid	265.34	93.95	91.59	112.13	2.36
Total		481.88	458.63	454.16	23.25	4.47

Remarks: All the load 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:	January 28, 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	138.95	400kV THP - Siliguri Line - II	77.52	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	157.75	
		Unit- V	0.00	400kV Malbase - Siliguri Line	55.32	
		Unit- VI	99.45	-	-	
		Total	238.40	Auxiliary Consumption & Transformation Losses at Generator end	1.31%	
2	720MW MHP	Unit-I	66.19	400kV MHP - Jigmeling Line - I	0.00	Unit-II on standby. 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 (Interim) on Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	69.97	400kV MHP - Jigmeling Line - IV	62.86	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	71.94	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	114.21	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-20.36	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-32.17	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	-3.31	
		-	-	80MVA, 220/132kV ICT - II (HV)	-3.46	
		-	-	220kV Tsirang - Jigmeling Line	-42.00	
-	-	132kV Gelephu - Salakati Line	-13.42			
Total	136.16	Auxiliary Consumption & Transformation Losses at Generator end	1.00%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	-10.08	Unit-I on Standby. Unit-II under Shutdown. 220kV CHP_Birpara Line II on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	0.00	
		Unit- III	64.22	220kV CHP - Malbase Line- III	33.11	
		Unit- IV	60.26	220kV CHP - Semtokha Line- IV	71.74	
		-	-	220kV Malbase - Birpara Line	-42.57	
		-	-	66kV CHP - Chumdo Line	19.62	
		-	-	66kV CHP - Gedu Line	8.39	
		-	-	3x3MVA, 66/11kV TFR	0.70	
Total	124.48	Auxiliary Consumption & Transformation Losses at Generator end	0.80%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	54.00	L/S & U/S unit-I on Standby
		Unit- II	6.40	66kV BHP - Lobeyasa Line	23.95	
		Total	6.40	220kV BHP - Tsirang Line	-58.84	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.49	L/S & U/S unit-I on Standby
		Unit- II	13.00	30MVA ICT, 220/66kV (HV)	18.20	
		Total	13.00	Auxiliary Consumption & Transformation Losses at Generator end	-1.03%	
6	126MW DHP	Unit-I	20.27	220kV DHP - Tsirang Line	20.04	Unit-II under Shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	66.64	
		-	-	5MVA, 220/33kV TFR	0.30	
Total	20.27	Auxiliary Consumption & Transformation Losses at Generator end	-0.35%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	13.53	Unit-II on Standby. Unit-IV under maintenance
		Unit-II	15.04	132kV KHP - Kilikhar Line	15.47	
		Unit- III	14.99	5MVA, 132/11kV TFR	0.50	
		Unit- IV	0.00	132kV Motanga - Rangia Line	7.35	
		Total	30.03	Auxiliary Consumption & Transformation Losses at Generator end	1.76%	

Note: Generation-Load Summary (MW) for January 28, 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	402.55	364.36	360.50	80.19	3.86
2	Eastern Grid	166.19	182.79	180.90	-58.60	1.89
Total		568.74	547.15	541.40	21.59	5.75

Note: Generation-Load Summary for January 28, 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	215.57	335.57	333.53	-74.33	2.04
2	Eastern Grid	224.15	79.75	77.86	98.73	1.89
Total		439.72	415.32	411.39	24.40	3.93

NOTE: All datas 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:

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