

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: January 24, 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	-61.02	
		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	247.27	Unit-I on Standby. Unit-II under Annual Maintenance. 400kV MHP-JLG Line II, III & IV on standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line I (Interim) under Standby. 400kV JLG_ALI Line II (Direct) on Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	124.36	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	125.12	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)	118.73	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	48.72	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	76.09	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	20.73	
		-	-	80MVA, 220/132kV ICT - II (HV)	21.08	
		-	-	220kV Tsirang - Jigmeling Line	-60.87	
-	-	132kV Gelephu - Salakati Line	-6.90			
Total	249.48	Auxiliary Consumption & Transformation Losses at Generator end	0.89%			
3	336MW CHP	Unit- I	83.77	220kV CHP - Birpara Line- I	6.28	Unit-IV on Standby. Unit-III under Annual Maintenance 220kV CHP_Birpara Line II under Breakdown since 29.12.21.
		Unit- II	84.37	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	62.94	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	72.37	
		-	-	220kV Malbase - Birpara Line	-38.70	
		-	-	66kV CHP - Chumdo Line	21.95	
		-	-	66kV CHP - Gedu Line	2.56	
		-	-	3x3MVA, 66/11kV TFR	1.85	
Total	168.14	Auxiliary Consumption & Transformation Losses at Generator end	0.11%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	74.10	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	7.60	66kV BHP - Lobeyasa Line	28.50	
		Total	7.60	220kV BHP - Tsirang Line	-81.06	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.94	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	14.70	30MVA ICT, 220/66kV (HV)	22.08	
		Total	14.70	Auxiliary Consumption & Transformation Losses at Generator end	-0.81%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	25.25	Unit-I under Annual Maintenance. 220kV DHP-Dagapela Line on standby.
		Unit-II	25.46	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	16.57	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	25.46	Auxiliary Consumption & Transformation Losses at Gen. end	0.04%			
7	60MW KHP	Unit- I	15.04	132kV KHP - Nangkhoh Line	10.47	Unit-II under Annual Maintenance. Unit III on Standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	18.66	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.80	
		Unit- IV	15.08	132kV Motanga - Rangia Line	2.81	
		Total	30.12	Auxiliary Consumption & Transformation Losses at Generator end	0.63%	

Note: Generation-Load Summary (MW) for January 24, 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	215.90	370.21	370.19	-93.44	0.02
2	Eastern Grid	279.60	98.01	95.61	120.72	2.40
Total		495.50	468.22	465.80	27.28	2.42

Note: Generation-Load Summary for January 24, 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	301.45	272.40	267.73	18.93	4.67
2	Eastern Grid	116.50	79.93	77.14	46.69	2.79
Total		417.95	352.33	344.87	65.62	7.46

NOTE- BHP 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 25, 2022
Hours: 09:00 Hours

Date: 12-Jan-22 **Time:** 18:00hrs **Load(MW):** 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	-58.14	
		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	215.23	Unit I on Standby. Unit II under Annual Maintenance. 400kV MHP-JLG Line II, III & IV on standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line I (Interim) under Standby. 400kV JLG_ALI Line II (Direct) on Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	133.47	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	84.07	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)	98.17	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	43.63	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	69.83	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	19.53	
		-	-	80MVA, 220/132kV ICT - II (HV)	19.83	
		-	-	220kV Tsirang - Jigmeling Line	-43.65	
-	-	132kV Gelephu - Salakati Line	-5.03			
Total	217.54	Auxiliary Consumption & Transformation Losses at Generator end	1.06%			
3	336MW CHP	Unit- I	84.10	220kV CHP - Birpara Line- I	13.65	Unit-IV on Standby. Unit-III under Annual Maintenance. 220kV CHP_Birpara Line II under breakdown.
		Unit- II	82.96	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	75.81	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	55.71	
		-	-	220kV Malbase - Birpara Line	-36.62	
		-	-	66kV CHP - Chumdo Line	17.10	
		-	-	66kV CHP - Gedu Line	2.88	
		-	-	3x3MVA, 66/11kV TFR	1.56	
Total	167.06	Auxiliary Consumption & Transformation Losses at Generator end	0.21%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	63.70	U/S Unit-I and L/S Unit-I under maintenance.
		Unit- II	7.30	66kV BHP - Lobeysa Line	24.31	
		Total	7.30	220kV BHP - Tsirang Line	-65.85	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.72	
		Unit- II	15.00	30MVA ICT, 220/66kV (HV)	17.59	
		Total	15.00	Auxiliary Consumption & Transformation Losses at Generator end	-2.60%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	25.77	Unit-I under Annual Maintenance. 220kV DHP_Dagapela Line on standby.
		Unit-II	25.99	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	15.77	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	25.99	Auxiliary Consumption & Transformation Losses at Generator end	0.08%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	12.99	Unit-I on standby. Unit-II under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilikhar Line	18.15	
		Unit- III	16.13	5MVA, 132/11kV TFR	0.90	
		Unit- IV	16.10	132kV Motanga - Rangia Line	11.70	
		Total	32.23	Auxiliary Consumption & Transformation Losses at Generator end	0.59%	

Note: Generation-Load Summary (MW) for January 25, 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	215.35	340.11	340.32	-81.11	-0.21
2	Eastern Grid	249.77	85.99	83.49	120.13	2.50
Total		465.12	426.10	423.81	39.02	2.29

Note: Generation-Load Summary for January 25, 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	290.96	219.05	213.98	66.40	5.07
2	Eastern Grid	129.95	58.55	57.65	76.91	0.90
Total		420.91	277.60	271.63	143.31	5.97

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.
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