

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: January 9, 2022
Hours: 18:00 Hours

Date: 30-Dec-21 **Time:** 18:00hrs **Load(MW):** 487.76

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	-60.74	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	80.15	400kV MHP - Jigmeling Line - I	234.10	Unit-II on Standby. Unit-IV 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 Shutdown. 400kV JLG_ALI Line I (Direct) on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	155.67	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	0.00	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)	107.98	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	47.27	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	74.09	
		-	-	80MVA, 220/132kV ICT - I (HV)	23.73	
		-	-	80MVA, 220/132kV ICT - II (HV)	24.14	
		-	-	220kV Tsirang - Jigmeling Line	-44.05	
-	-	132kV Gelephu - Salakati Line	-4.16			
Total	235.82	Auxiliary Consumption & Transformation Losses at Generator end	0.73%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I on Standby. Unit-III under Annual Maintenance 220kV CHP_Birpara Line I & II under breakdown.
		Unit- II	84.00	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	66.74	
		Unit- IV	83.81	220kV CHP - Semtokha Line- IV	74.66	
		-	-	220kV Malbase - Birpara Line	-24.95	
		-	-	66kV CHP - Chumdo Line	20.52	
		-	-	66kV CHP - Gedu Line	3.16	
		-	-	3x3MVA, 66/11kV TFR	1.95	
Total	167.81	Auxiliary Consumption & Transformation Losses at Generator end	0.46%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	62.60	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	8.40	66kV BHP - Lobeyasa Line	27.98	
		Total	8.40	220kV BHP - Tsirang Line	-66.96	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.92	
		Unit- II	16.20	30MVA ICT, 220/66kV (HV)	20.75	
		Total	16.20	Auxiliary Consumption & Transformation Losses at Generator end	0.24%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	27.31	Unit-I under Annual Maintenance. 220kV DHP-Dagapela Line on standby.
		Unit-II	28.08	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	16.31	
		-	-	5MVA, 220/33kV TFR	0.50	
Total	28.08	Auxiliary Consumption & Transformation Losses at Gen. end	0.96%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	11.34	Unit-III on standby. Unit-IV under Annual Maintenance.
		Unit-II	15.09	132kV KHP - Kilikhar Line	17.67	
		Unit- III	15.07	5MVA, 132/11kV TFR	0.40	
		Unit- IV	0.00	132kV Motanga - Rangia Line	-2.71	
		Total	30.16	Auxiliary Consumption & Transformation Losses at Generator end	2.49%	

Note: Generation-Load Summary (MW) for January 09, 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	220.49	350.23	349.12	-85.69	1.11
2	Eastern Grid	265.98	107.44	104.97	114.49	2.47
Total		486.47	457.67	454.09	28.80	3.58

Note: Generation-Load Summary for January 09, 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	313.79	264.56	258.96	36.21	5.60
2	Eastern Grid	135.69	55.83	54.57	92.88	1.26
Total		449.48	320.39	313.53	129.09	6.86

NOTE- MHP and 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: January 10, 2022
Hours: 09:00 Hours

Date	Time	Load(MW)
30-Dec-21	18:00hrs	487.76

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	-61.15	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	81.92	400kV MHP - Jigmeling Line - I	227.12	Unit-II on Standby. Unit-IV 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 shutdown. 400kV JLG_ALI Line I (Direct) on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	147.07	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	0.00	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)	94.08	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	50.18	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	78.82	
		-	-	80MVA, 220/132kV ICT - I (HV)	21.08	
		-	-	80MVA, 220/132kV ICT - II (HV)	21.45	
		-	-	220kV Tsirang - Jigmeling Line	-37.13	
-	-	132kV Gelephu - Salakati Line	1.23			
Total	228.99	Auxiliary Consumption & Transformation Losses at Generator end	0.82%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I on Standby. Unit-III under Annual Maintenance. 220kV CHP_Birpara Line-I & II under breakdown..
		Unit- II	83.62	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	74.02	
		Unit- IV	84.14	220kV CHP - Semtokha Line- IV	71.11	
		-	-	220kV Malbase - Birpara Line	-34.98	
		-	-	66kV CHP - Chumdo Line	19.17	
		-	-	66kV CHP - Gedu Line	2.11	
		-	-	3x3MVA, 66/11kV TFR	1.70	
Total	167.76	Auxiliary Consumption & Transformation Losses at Generator end	-0.21%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	59.60	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	8.40	66kV BHP - Lobeyasa Line	26.36	
		Total	8.40	220kV BHP - Tsirang Line	-61.54	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.60	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	16.60	30MVA ICT, 220/66kV (HV)	18.80	
		Total	16.60	Auxiliary Consumption & Transformation Losses at Generator end	-0.08%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	27.66	Unit-I under Annual Maintenance. 220kV DHP_Dagapela Line on standby.
		Unit-II	28.48	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	15.52	
		-	-	5MVA, 220/33kV TFR	0.30	
Total	28.48	Auxiliary Consumption & Transformation Losses at Generator end	1.83%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	14.10	Unit I on standby. Unit-IV under Annual Maintenance.
		Unit-II	15.07	132kV KHP - Kilikhar Line	15.05	
		Unit- III	15.10	5MVA, 132/11kV TFR	0.40	
		Unit- IV	0.00	132kV Motanga - Rangia Line	0.01	
		Total	30.17	Auxiliary Consumption & Transformation Losses at Generator end	2.06%	

Note: Generation-Load Summary (MW) for January 10, 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	221.24	354.50	354.35	-96.13	0.15
2	Eastern Grid	259.16	91.79	89.30	130.24	2.49
Total		480.40	446.29	443.65	34.11	2.64

Note: Generation-Load Summary for January 10, 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	307.06	227.19	220.12	71.06	7.07
2	Eastern Grid	139.55	44.71	43.31	103.65	1.40
Total		446.61	271.90	263.43	174.71	8.47

NOTE-BHP data collected from Site.

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 - 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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