

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: January 10, 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	-68.11	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	79.79	400kV MHP - Jigmeling Line - I	240.34	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	162.61	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)	113.25	
		-	-	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)	74.61	
		-	-	80MVA, 220/132kV ICT - I (HV)	25.34	
		-	-	80MVA, 220/132kV ICT - II (HV)	26.73	
		-	-	220kV Tsirang - Jigmeling Line	-45.29	
-	-	132kV Gelephu - Salakati Line	-1.23			
Total	242.40	Auxiliary Consumption & Transformation Losses at Generator end	0.85%			
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	83.63	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	66.84	
		Unit- IV	87.21	220kV CHP - Semtokha Line- IV	77.47	
		-	-	220kV Malbase - Birpara Line	-31.95	
		-	-	66kV CHP - Chumdo Line	20.49	
		-	-	66kV CHP - Gedu Line	3.59	
		-	-	3x3MVA, 66/11kV TFR	1.90	
Total	170.84	Auxiliary Consumption & Transformation Losses at Generator end	0.32%			
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	8.30	66kV BHP - Lobeyasa Line	28.55	
		Total	8.30	220kV BHP - Tsirang Line	-68.59	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.85	
		Unit- II	16.20	30MVA ICT, 220/66kV (HV)	21.32	
		Total	16.20	Auxiliary Consumption & Transformation Losses at Generator end	-0.04%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	27.17	Unit-I under Annual Maintenance. 220kV DHP-Dagapela Line on standby.
		Unit-II	28.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	16.42	
		-	-	5MVA, 220/33kV TFR	0.80	
Total	28.00	Auxiliary Consumption & Transformation Losses at Gen. end	0.11%			
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhor Line	13.19	Unit-III tripped at 16:36hrs(10.01.2021) Unit-IV under Annual Maintenance.
		Unit-II	16.42	132kV KHP - Kilikhar Line	18.75	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.70	
		Unit- IV	0.00	132kV Motanga - Rangia Line	1.50	
		Total	32.92	Auxiliary Consumption & Transformation Losses at Generator end	0.85%	

Note: Generation-Load Summary (MW) for January 10, 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	223.34	368.69	368.12	-100.06	0.57
2	Eastern Grid	275.32	107.88	105.54	122.15	2.34
Total		498.66	476.57	473.66	22.09	2.91

Note: Generation-Load Summary for January 10, 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	313.02	258.64	253.96	41.58	4.68
2	Eastern Grid	138.77	57.97	57.19	93.60	0.78
Total		451.79	316.61	311.15	135.18	5.46

NOTE- MHP and BHP data collected from site.

- 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:
 - 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.
 - The clocks of all the locations are not synchronized.
- 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 11, 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	-62.87	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	75.21	400kV MHP - Jigmeling Line - I	219.99	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	146.48	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)	95.63	
		-	-	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)	74.58	
		-	-	80MVA, 220/132kV ICT - I (HV)	19.71	
		-	-	80MVA, 220/132kV ICT - II (HV)	20.10	
		-	-	220kV Tsirang - Jigmeling Line	-39.89	
-	-	132kV Gelephu - Salakati Line	0.66			
Total	221.69	Auxiliary Consumption & Transformation Losses at Generator end	0.77%			
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	76.98	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	60.76	
		Unit- IV	75.76	220kV CHP - Semtokha Line- IV	68.03	
		-	-	220kV Malbase - Birpara Line	-29.31	
		-	-	66kV CHP - Chumdo Line	19.16	
		-	-	66kV CHP - Gedu Line	2.42	
		-	-	3x3MVA, 66/11kV TFR	1.66	
Total	152.74	Auxiliary Consumption & Transformation Losses at Generator end	0.46%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	61.40	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	7.90	66kV BHP - Lobeyssa Line	26.40	
		Total	7.90	220kV BHP - Tsirang Line	-64.19	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.59	
		Unit- II	16.00	30MVA ICT, 220/66kV (HV)	19.00	
		Total	16.00	Auxiliary Consumption & Transformation Losses at Generator end	-1.26%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	27.26	Unit-I under Annual Maintenance. 220kV DHP_Dagapela Line on standby.
		Unit-II	27.98	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	15.47	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	27.98	Auxiliary Consumption & Transformation Losses at Generator end	1.86%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	13.94	Unit I on standby. Unit-IV under Annual Maintenance.
		Unit-II	15.07	132kV KHP - Kilikhar Line	15.14	
		Unit- III	15.06	5MVA, 132/11kV TFR	0.70	
		Unit- IV	0.00	132kV Motanga - Rangia Line	1.68	
		Total	30.13	Auxiliary Consumption & Transformation Losses at Generator end	1.16%	

Note: Generation-Load Summary (MW) for January 11, 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	204.62	336.69	335.76	-92.18	0.93
2	Eastern Grid	251.82	87.74	85.69	124.19	2.05
Total		456.44	424.43	421.45	32.01	2.98

Note: Generation-Load Summary for January 11, 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	309.38	236.38	231.47	57.44	4.91
2	Eastern Grid	142.29	48.82	48.08	109.03	0.74
Total		451.67	285.20	279.55	166.47	5.65

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.