

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: January 21, 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	-59.10	
		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	199.22	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 II (Interim) under Standby. 400kV JLG_ALI Line I (Direct) on Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	100.27	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	100.01	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)	110.75	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	34.24	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	52.75	
		-	-	80MVA, 220/132kV ICT - I (HV)	19.60	
		-	-	80MVA, 220/132kV ICT - II (HV)	19.99	
		-	-	220kV Tsirang - Jigmeling Line	-54.03	
-	-	132kV Gelephu - Salakati Line	-7.53			
Total	200.28	Auxiliary Consumption & Transformation Losses at Generator end	0.53%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	10.26	Unit-I on Standby. Unit-III under Annual Maintenance 220kV CHP_Birpara Line II under Breakdown since 29.12.21.
		Unit- II	91.87	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	68.05	
		Unit- IV	91.24	220kV CHP - Semtokha Line- IV	77.79	
		-	-	220kV Malbase - Birpara Line	-36.81	
		-	-	66kV CHP - Chumdo Line	22.17	
		-	-	66kV CHP - Gedu Line	1.91	
		-	-	3x3MVA, 66/11kV TFR	1.88	
Total	183.11	Auxiliary Consumption & Transformation Losses at Generator end	0.57%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	68.10	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	7.40	66kV BHP - Lobeyasa Line	29.50	
		Total	7.40	220kV BHP - Tsirang Line	-75.01	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	1.01	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	16.50	30MVA ICT, 220/66kV (HV)	21.78	
		Total	16.50	Auxiliary Consumption & Transformation Losses at Generator end	1.26%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	25.37	Unit-I under Annual Maintenance. 220kV DHP-Dagapela Line on standby.
		Unit-II	25.59	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	16.39	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	25.59	Auxiliary Consumption & Transformation Losses at Gen. end	0.08%			
7	60MW KHP	Unit- I	15.10	132kV KHP - Nangkhoh Line	21.11	Unit-II under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilikhar Line	22.95	
		Unit- III	15.13	5MVA, 132/11kV TFR	0.85	
		Unit- IV	15.07	132kV Motanga - Rangia Line	14.82	
		Total	45.30	Auxiliary Consumption & Transformation Losses at Generator end	0.87%	

Note: Generation-Load Summary (MW) for January 21, 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	232.60	372.28	370.91	-85.65	1.37
2	Eastern Grid	245.58	97.27	95.82	94.28	1.45
Total		478.18	469.55	466.73	8.63	2.82

Note: Generation-Load Summary for January 21, 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	311.54	261.56	258.67	37.70	2.89
2	Eastern Grid	139.31	71.24	70.38	80.35	0.86
Total		450.85	332.80	329.05	118.05	3.75

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:

- 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.

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 22, 2022
Hours:	09:00 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	-58.92	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	84.78	400kV MHP - Jigmeling Line - I	202.97	Unit-II under Annual Maintenance & Unit III on Standby. 400kV MHP-JLG Line II, III & IV on Standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line II (Interim) under Standby. 400kV JLG_ALI Line I (Direct) 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	119.36	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)	94.78	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	41.96	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	64.36	
		-	-	80MVA, 220/132kV ICT - I (HV)	18.42	
		-	-	80MVA, 220/132kV ICT - II (HV)	18.72	
		-	-	220kV Tsirang - Jigmeling Line	-42.29	
-	-	132kV Gelephu - Salakati Line	-4.53			
Total	204.14	Auxiliary Consumption & Transformation Losses at Generator end	0.57%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	9.00	Unit-I on Standby. Unit-III under Annual Maintenance. 220kV CHP_Birpara Line II under breakdown.
		Unit- II	79.31	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	63.84	
		Unit- IV	71.32	220kV CHP - Semtokha Line- IV	55.84	
		-	-	220kV Malbase - Birpara Line	-33.91	
		-	-	66kV CHP - Chumdo Line	16.90	
		-	-	66kV CHP - Gedu Line	2.64	
		-	-	3x3MVA, 66/11kV TFR	1.56	
Total	150.63	Auxiliary Consumption & Transformation Losses at Generator end	0.56%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	63.00	U/S Unit-I and L/S Unit-I under maintenance.
		Unit- II	7.80	66kV BHP - Lobeysa Line	24.46	
		Total	7.80	220kV BHP - Tsirang Line	-64.92	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.65	
		Unit- II	15.20	30MVA ICT, 220/66kV (HV)	17.52	
		Total	15.20	Auxiliary Consumption & Transformation Losses at Generator end	-0.83%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	25.76	Unit-I under Annual Maintenance. 220kV DHP_Dagapela Line on standby.
		Unit-II	25.97	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	16.01	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	25.97	Auxiliary Consumption & Transformation Losses at Generator end	0.04%			
7	60MW KHP	Unit- I	15.13	132kV KHP - Nangkhoh Line	12.91	Unit-III on standby. Unit-II under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilikhar Line	16.31	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.85	
		Unit- IV	15.07	132kV Motanga - Rangia Line	7.18	
		Total	30.20	Auxiliary Consumption & Transformation Losses at Generator end	0.44%	

Note: Generation-Load Summary (MW) for January 22, 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	199.60	325.72	325.05	-83.83	0.67
2	Eastern Grid	234.34	83.08	81.78	108.97	1.30
Total		433.94	408.80	406.83	25.14	1.97

Note: Generation-Load Summary for January 22, 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	314.34	243.97	234.26	57.80	9.71
2	Eastern Grid	139.26	57.17	56.53	94.66	0.64
Total		453.60	301.14	290.79	152.46	10.35

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.