

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	January 20, 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	-57.87	
		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	246.43	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 Shutdown. 400kV JLG_ALI Line I (Direct) on Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	81.65	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	166.28	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)	122.41	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	47.83	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	73.04	
		-	-	80MVA, 220/132kV ICT - I (HV)	22.83	
		-	-	80MVA, 220/132kV ICT - II (HV)	23.22	
		-	-	220kV Tsirang - Jigmeling Line	-60.20	
-	-	132kV Gelephu - Salakati Line	-7.84			
Total	247.93	Auxiliary Consumption & Transformation Losses at Generator end	0.61%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	4.09	Unit-I on Standby. Unit-III under Annual Maintenance 220kV CHP_Birpara Line II under Breakdown since 29.12.21.
		Unit- II	84.06	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	61.62	
		Unit- IV	83.87	220kV CHP - Semtokha Line- IV	75.20	
		-	-	220kV Malbase - Birpara Line	-40.50	
		-	-	66kV CHP - Chumdo Line	21.86	
		-	-	66kV CHP - Gedu Line	2.51	
		-	-	3x3MVA, 66/11kV TFR	1.89	
Total	167.93	Auxiliary Consumption & Transformation Losses at Generator end	0.45%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	72.50	U/S unit-I and L/S Unit-I under maintenance.
		Unit- II	7.70	66kV BHP - Lobeyasa Line	28.79	
		Total	7.70	220kV BHP - Tsirang Line	-80.04	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.99	
		Unit- II	14.40	30MVA ICT, 220/66kV (HV)	22.43	
		Total	14.40	Auxiliary Consumption & Transformation Losses at Generator end	-0.63%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	24.79	Unit-I under Annual Maintenance. 220kV DHP-Dagapela Line on standby.
		Unit-II	25.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	16.33	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	25.00	Auxiliary Consumption & Transformation Losses at Gen. end	0.04%			
7	60MW KHP	Unit- I	15.15	132kV KHP - Nangkhoh Line	9.93	Unit-III on standby. Unit-II under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilikhar Line	19.24	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.71	
		Unit- IV	15.14	132kV Motanga - Rangia Line	7.82	
		Total	30.29	Auxiliary Consumption & Transformation Losses at Generator end	1.35%	

Note: Generation-Load Summary (MW) for January 20, 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	215.03	369.51	368.88	-94.28	0.63
2	Eastern Grid	278.22	97.17	95.26	120.85	1.91
Total		493.25	466.68	464.14	26.57	2.54

Note: Generation-Load Summary for January 20, 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	333.19	262.73	258.66	57.00	4.07
2	Eastern Grid	136.95	68.79	66.50	81.62	2.29
Total		470.14	331.52	325.16	138.62	6.36

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 21, 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	-54.19	
		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	200.62	Unit-II under Annual Maintenance & Unit I 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 Shutdown. 400kV JLG_ALI Line I (Direct) on Standby
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	99.31	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	102.42	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)	94.79	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	40.64	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	62.39	
		-	-	80MVA, 220/132kV ICT - I (HV)	19.35	
		-	-	80MVA, 220/132kV ICT - II (HV)	19.78	
		-	-	220kV Tsirang - Jigmeling Line	-40.79	
-	-	132kV Gelephu - Salakati Line	-4.53			
Total	201.73	Auxiliary Consumption & Transformation Losses at Generator end	0.55%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	14.56	Unit-I on Standby. Unit-III under Annual Maintenance. 220kV CHP_Birpara Line II under breakdown..
		Unit- II	82.94	220kV CHP - Birpara Line- II	0.00	
		Unit- III	0.00	220kV CHP - Malbase Line- III	71.09	
		Unit- IV	84.79	220kV CHP - Semtokha Line- IV	59.88	
		-	-	220kV Malbase - Birpara Line	-30.89	
		-	-	66kV CHP - Chumdo Line	17.53	
		-	-	66kV CHP - Gedu Line	2.10	
		-	-	3x3MVA, 66/11kV TFR	1.57	
Total	167.73	Auxiliary Consumption & Transformation Losses at Generator end	0.60%			
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	7.40	66kV BHP - Lobeyasa Line	24.50	
		Total	7.40	220kV BHP - Tsirang Line	-62.46	
5	40MW BHP (L/S)	Unit- I	0.00	5MVA, 66/11kV TFR	0.70	
		Unit- II	14.50	30MVA ICT, 220/66kV (HV)	17.17	
		Total	14.50	Auxiliary Consumption & Transformation Losses at Generator end	-2.01%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	25.35	Unit-I under Annual Maintenance. 220kV DHP_Dagapela Line on standby.
		Unit-II	25.58	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	15.75	
		-	-	5MVA, 220/33kV TFR	0.22	
Total	25.58	Auxiliary Consumption & Transformation Losses at Generator end	0.04%			
7	60MW KHP	Unit- I	11.49	132kV KHP - Nangkhoh Line	7.26	Unit-III on standby. Unit-II under Annual Maintenance.
		Unit-II	0.00	132kV KHP - Kilikhar Line	14.61	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.67	
		Unit- IV	11.50	132kV Motanga - Rangia Line	2.00	
		Total	22.99	Auxiliary Consumption & Transformation Losses at Generator end	1.96%	

Note: Generation-Load Summary (MW) for January 21, 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	215.21	326.52	325.95	-70.52	0.57
2	Eastern Grid	224.72	83.43	81.87	100.50	1.56
Total		439.93	409.95	407.82	29.98	2.13

Note: Generation-Load Summary for January 21, 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	324.25	214.81	208.67	91.35	6.14
2	Eastern Grid	146.24	60.72	59.48	103.61	1.24
Total		470.49	275.53	268.15	194.96	7.38

NOTE-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.
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