

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: February 16, 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	-36.76	
		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	159.26	Unit-I & II under Annual Maintenance. 400kV MHP-JLG Line II, III & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on Standby. 400kV JLG_ALI Line I (Direct) under Breakdown.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	85.30	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	74.15	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)	65.07	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	37.31	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	55.28	
		-	-	80MVA, 220/132kV ICT - I (HV)	16.80	
		-	-	80MVA, 220/132kV ICT - II (HV)	17.06	
		-	-	220kV Tsirang - Jigmeling Line	-51.74	
-	-	132kV Gelephu - Salakati Line	-9.73			
Total	159.45	Auxiliary Consumption & Transformation Losses at Generator end	0.12%			
3	336MW CHP	Unit- I	89.12	220kV CHP - Birpara Line- I	16.43	Unit-II on Standby. Unit-III under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Line- II	16.41	
		Unit- III	0.00	220kV CHP - Malbase Line- III	82.95	
		Unit- IV	88.98	220kV CHP - Semtokha Line- IV	37.02	
		-	-	220kV Malbase - Birpara Line	-37.44	
		-	-	66kV CHP - Chumdo Line	15.28	
		-	-	66kV CHP - Gedu Line	4.52	
		-	-	3x3MVA, 66/11kV TFR	1.77	
Total	178.10	Auxiliary Consumption & Transformation Losses at Generator end	2.09%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	53.20	U/S Unit-I under maintenance. L/S Unit-II on Standby. 66kV BHP_Lobeyasa Line opened at 7:13hrs due to forest fire at Gewathang .
		Unit- II	7.30	66kV BHP - Lobeyasa Line	14.93	
		Total	7.30	220kV BHP - Tsirang Line	-47.30	
5	40MW BHP (L/S)	Unit- I	14.10	5MVA, 66/11kV TFR	0.76	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	8.55	
		Total	14.10	Auxiliary Consumption & Transformation Losses at Generator end	-0.89%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	0.00	Unit-I under Annual Maintenance. 220kV DHP_Tsirang Line on Standby.
		Unit-II	25.93	220kV DHP - Dagapela Line	25.76	
		-	-	220kV Jigmeling - Dagapela Line	-22.45	
		-	-	5MVA, 220/33kV TFR	0.16	
Total	25.93	Auxiliary Consumption & Transformation Losses at Gen. end	0.04%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	7.44	Unit-I under AMP. Unit-II on Standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	14.18	
		Unit- III	11.30	5MVA, 132/11kV TFR	0.78	
		Unit- IV	11.32	132kV Motanga - Rangia Line	3.17	
		Total	22.62	Auxiliary Consumption & Transformation Losses at Generator end	0.97%	

Note: Generation-Load Summary (MW) for February 16, 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	225.43	318.53	314.99	-41.36	3.54
2	Eastern Grid	182.07	44.30	43.89	86.03	0.41
Total		407.50	362.83	358.88	44.67	3.95

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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	271.49	253.93	246.30	21.54	7.63
2	Eastern Grid	115.37	50.74	50.60	60.74	0.14
Total		386.86	304.67	296.90	82.28	7.77

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.

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: February 17, 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	-49.39	
		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	187.37	Unit-I & II under Annual Maintenance. 400kV MHP-JLG Line II, III & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on Standby. 400kV JLG_ALI Line I (Direct) under Breakdown.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	103.15	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	85.04	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)	76.30	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	42.82	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	65.38	
		-	-	80MVA, 220/132kV ICT - I (HV)	13.36	
		-	-	80MVA, 220/132kV ICT - II (HV)	13.61	
		-	-	220kV Tsirang - Jigmeling Line	-68.95	
-	-	132kV Gelephu - Salakati Line	-5.98			
Total	188.19	Auxiliary Consumption & Transformation Losses at Generator end	0.44%			
3	336MW CHP	Unit- I	91.32	220kV CHP - Birpara Line- I	9.98	Unit-II on Standby. Unit-III under Annual Maintenance.
		Unit- II	0.00	220kV CHP - Birpara Line- II	10.05	
		Unit- III	0.00	220kV CHP - Malbase Line- III	77.55	
		Unit- IV	91.58	220kV CHP - Semtokha Line- IV	62.06	
		-	-	220kV Malbase - Birpara Line	-42.67	
		-	-	66kV CHP - Chumdo Line	16.72	
		-	-	66kV CHP - Gedu Line	3.09	
		-	-	3x3MVA, 66/11kV TFR	1.48	
Total	182.90	Auxiliary Consumption & Transformation Losses at Generator end	1.08%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	69.00	U/S Unit-I under Annual maintenance. L/S Unit-II on Standby.
		Unit- II	20.30	66kV BHP - Lobeysa Line	24.78	
		Total	20.30	220kV BHP - Tsirang Line	-66.37	
5	40MW BHP (L/S)	Unit- I	7.70	5MVA, 66/11kV TFR	0.53	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	18.16	
		Total	7.70	Auxiliary Consumption & Transformation Losses at Generator end	0.21%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	0.00	Unit-I under Annual Maintenance. 220kV DHP_Tsirang Line on Standby.
		Unit-II	29.36	220kV DHP - Dagapela Line	29.10	
		-	-	220kV Jigmeling - Dagapela Line	-21.11	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	29.36	Auxiliary Consumption & Transformation Losses at Generator end	0.20%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	13.82	Unit-I under AMP. Unit-II on Standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	15.37	
		Unit- III	15.03	5MVA, 132/11kV TFR	0.40	
		Unit- IV	15.05	132kV Motanga - Rangia Line	9.96	
		Total	30.08	Auxiliary Consumption & Transformation Losses at Generator end	1.63%	

Note: Generation-Load Summary (MW) for February 17, 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	240.26	381.24	379.15	-72.03	2.09
2	Eastern Grid	218.27	37.14	35.83	112.18	1.31
Total		458.53	418.38	414.98	40.15	3.40

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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	260.12	216.70	211.34	51.54	5.36
2	Eastern Grid	111.58	25.96	25.91	77.50	0.05
Total		371.70	242.66	237.25	129.04	5.41

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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