

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: November 16, 2022
Hours: 18:00 Hours

Date	Time	Load(MW)
7-Nov-22	18:11hrs	609.06

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	Unit-I & II under Shutdown. Unit-IV on Standby. 400kV Tala-Malbase line under Shutdown. 400kV THP - Siliguri Line- I on Standby.
		Unit- II	0.00	400kV THP - Siliguri Line - II	180.05	
		Unit- III	78.88	400kV THP - Siliguri Line- IV	172.77	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	138.37	400kV Malbase - Siliguri Line	-80.11	
		Unit- VI	138.50	-	-	
		Total	355.75	Auxiliary Consumption & Transformation Losses at Generator end	0.82%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	0.00	Unit-I on standby. Unit-III under shutdown. 400kV MHP-JLG Line I, II & IV on Standby. 132kV MHP_Yurmoo line I not in service. 400kV JLG_ALI Direct line II Standby. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	104.87	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	114.67	
		Unit-IV	105.18	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	94.30	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	110.73	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	1.03	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	2.36	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	12.18	
		-	-	80MVA, 220/132kV ICT - II (HV)	12.46	
		-	-	220kV Tsirang - Jigmeling Line	-22.02	
-	-	132kV Gelephu - Salakati Line	-3.07			
Total	210.05	Auxiliary Consumption & Transformation Losses at Generator end	0.51%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.49	Unit-I under Shutdown.
		Unit- II	59.98	220kV CHP - Birpara Line- II	0.77	
		Unit- III	65.72	220kV CHP - Malbase Line- III	59.19	
		Unit- IV	50.01	220kV CHP - Semtokha Line- IV	81.04	
		-	-	220kV Malbase - Birpara Line	-44.47	
		-	-	66kV CHP - Chumdo Line	23.70	
		-	-	66kV CHP - Gedu Line	8.35	
		-	-	3x3MVA, 66/11kV TFR	1.82	
Total	175.71	Auxiliary Consumption & Transformation Losses at Generator end	0.20%			
4	24MW BHP (U/S)	Unit- I	6.30	220kV BHP - Semtokha Line	66.26	
		Unit- II	6.00	66kV BHP - Lobeysa Line	28.94	
		Total	12.30	220kV BHP - Tsirang Line	-59.07	
5	40MW BHP (L/S)	Unit- I	12.20	5MVA, 66/11kV TFR	1.07	
		Unit- II	12.50	30MVA ICT, 220/66kV (HV)	18.00	
		Total	24.70	Auxiliary Consumption & Transformation Losses at Generator end	-0.54%	
6	126MW DHP	Unit-I	41.31	220kV DHP - Tsirang Line	41.08	Unit-II on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	63.02	
		-	-	5MVA, 220/33kV TFR	0.22	
Total	41.31	Auxiliary Consumption & Transformation Losses at Gen. end	0.02%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	15.56	Unit I on Standby.
		Unit-II	13.09	132kV KHP - Kilikhar Line	22.68	
		Unit- III	13.04	5MVA, 132/11kV TFR	0.70	
		Unit- IV	13.11	132kV Motanga - Rangia Line	17.74	
		Total	39.24	Auxiliary Consumption & Transformation Losses at Generator end	0.76%	

Note: Generation-Load Summary (MW) for November 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	609.77	402.29	399.20	229.50	3.09
2	Eastern Grid	249.29	209.21	207.83	18.06	1.38
Total		859.06	611.50	607.03	247.56	4.47

Note: Generation-Load Summary for November 16, 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	746.40	353.87	350.41	397.03	3.46
2	Eastern Grid	247.63	82.10	79.72	161.03	2.38
Total		994.03	435.97	430.13	558.06	5.84

NOTE:

- 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: November 17, 2022
Hours: 09:00 Hours

Date	Time	Load(MW)
7-Nov-22	18:11hrs	609.06

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	Unit-I & II under Shutdown. Unit-IV on Standby. 400kV Tala-Malbase line under Shutdown. 400kV THP - Siliguri Line- I on Standby.
		Unit- II	0.00	400kV THP - Siliguri Line - II	174.05	
		Unit- III	78.64	400kV THP - Siliguri Line- IV	166.90	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	126.96	400kV Malbase - Siliguri Line	-58.71	
		Unit- VI	138.22	-	-	
		Total	343.82	Auxiliary Consumption & Transformation Losses at Generator end	0.83%	
2	720MW MHP	Unit-I	109.85	400kV MHP - Jigmeling Line - I	0.00	Unit-I on standby. Unit-III under shutdown. 400kV MHP-JLG Line I, II & IV on Standby. 132kV MHP_Yurmoo line I not in service. 400kV JLG_ALI Direct line II Standby. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	140.63	
		Unit-IV	110.14	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	78.70	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	86.43	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	20.14	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	31.80	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	7.28	
		-	-	80MVA, 220/132kV ICT - II (HV)	7.48	
		-	-	220kV Tsirang - Jigmeling Line	-23.26	
-	-	132kV Gelephu - Salakati Line	0.20			
Total	219.99	Auxiliary Consumption & Transformation Losses at Generator end	0.30%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	6.18	Unit-I under shutdown.
		Unit- II	59.52	220kV CHP - Birpara Line- II	6.01	
		Unit- III	66.86	220kV CHP - Malbase Line- III	69.05	
		Unit- IV	50.18	220kV CHP - Semtokha Line- IV	66.90	
		-	-	220kV Malbase - Birpara Line	-43.14	
		-	-	66kV CHP - Chumdo Line	18.64	
		-	-	66kV CHP - Gedu Line	8.35	
		-	-	3x3MVA, 66/11kV TFR	1.08	
Total	176.56	Auxiliary Consumption & Transformation Losses at Generator end	0.20%			
4	24MW BHP (U/S)	Unit- I	6.20	220kV BHP - Semtokha Line	59.70	
		Unit- II	6.00	66kV BHP - Lobeyasa Line	24.82	
		Total	12.20	220kV BHP - Tsirang Line	-48.75	
5	40MW BHP (L/S)	Unit- I	12.00	5MVA, 66/11kV TFR	0.46	
		Unit- II	12.00	30MVA ICT, 220/66kV (HV)	13.41	
		Total	24.00	Auxiliary Consumption & Transformation Losses at Generator end	-0.08%	
6	126MW DHP	Unit-I	40.87	220kV DHP - Tsirang Line	40.64	Unit-II on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	61.30	
		-	-	5MVA, 220/33kV TFR	0.22	
Total	40.87	Auxiliary Consumption & Transformation Losses at Generator end	0.02%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	19.78	Unit I under standby.
		Unit-II	12.49	132kV KHP - Kilikhar Line	16.83	
		Unit- III	12.48	5MVA, 132/11kV TFR	0.50	
		Unit- IV	12.50	132kV Motanga - Rangia Line	10.48	
		Total	37.47	Auxiliary Consumption & Transformation Losses at Generator end	0.96%	

Note: Generation-Load Summary (MW) for November 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	597.45	369.42	366.22	251.29	3.20
2	Eastern Grid	257.46	171.58	170.56	62.62	1.02
Total		854.91	541.00	536.78	313.91	4.22

Note: Generation-Load Summary for November 17, 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	759.15	336.59	343.94	431.69	-7.35
2	Eastern Grid	250.20	66.91	64.95	174.16	1.96
Total		1,009.35	403.50	408.89	605.85	-5.39

NOTE- BHP and DHP 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.