

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: November 6, 2022
Hours: 18:00 Hours

Date	Time	Load(MW)
3-Nov-22	18:18hrs	600.914

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	201.00	Unit-I & 400kV Tala-Malbase line under Shutdown. Unit-IV on Standby. 400kV THP- Siliguri Line- II on Standby.
		Unit- II	99.90	400kV THP - Siliguri Line - II	0.00	
		Unit- III	100.80	400kV THP - Siliguri Line- IV	190.00	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	99.00	400kV Malbase - Siliguri Line	-84.36	
		Unit- VI	110.60	-	-	
		Total	410.30	Auxiliary Consumption & Transformation Losses at Generator end	4.70%	
2	720MW MHP	Unit-I	120.23	400kV MHP - Jigmeling Line - I	0.00	Unit-II on standby. Unit-III under shutdown. 400kV MHP-JLG Line I under shutdown. 400kV MHP-JLG Line 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	144.56	
		Unit-IV	115.39	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	89.66	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	94.02	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	19.54	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	29.48	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	11.13	
		-	-	80MVA, 220/132kV ICT - II (HV)	11.39	
		-	-	220kV Tsirang - Jigmeling Line	-2.99	
-	-	132kV Gelephu - Salakati Line	6.40			
Total	235.62	Auxiliary Consumption & Transformation Losses at Generator end	0.59%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	7.20	Unit-I on Shutdown.
		Unit- II	72.45	220kV CHP - Birpara Line- II	7.30	
		Unit- III	74.81	220kV CHP - Malbase Line- III	70.36	
		Unit- IV	54.00	220kV CHP - Semtokha Line- IV	82.99	
		-	-	220kV Malbase - Birpara Line	-35.52	
		-	-	66kV CHP - Chumdo Line	23.00	
		-	-	66kV CHP - Gedu Line	5.20	
		-	-	3x3MVA, 66/11kV TFR	2.02	
Total	201.26	Auxiliary Consumption & Transformation Losses at Generator end	1.59%			
4	24MW BHP (U/S)	Unit- I	7.20	220kV BHP - Semtokha Line	60.50	
		Unit- II	6.90	66kV BHP - Lobeyssa Line	28.80	
		Total	14.10	220kV BHP - Tsirang Line	-47.02	
5	40MW BHP (L/S)	Unit- I	14.40	5MVA, 66/11kV TFR	0.78	
		Unit- II	14.20	30MVA ICT, 220/66kV (HV)	15.33	
		Total	28.60	Auxiliary Consumption & Transformation Losses at Generator end	-0.84%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	47.24	Unit-I on Standby 220kV DHP-Dagapela Line on Standby.
		Unit-II	47.56	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	62.98	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	47.56	Auxiliary Consumption & Transformation Losses at Gen. end	0.25%			
7	60MW KHP	Unit- I	14.66	132kV KHP - Nangkhon Line	19.41	Unit-IV under standby.
		Unit-II	14.69	132kV KHP - Kilikhar Line	23.54	
		Unit- III	14.72	5MVA, 132/11kV TFR	0.40	
		Unit- IV	0.00	132kV Motanga - Rangia Line	19.42	
		Total	44.07	Auxiliary Consumption & Transformation Losses at Generator end	1.63%	

Note: Generation-Load Summary (MW) for November 06, 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	701.82	419.19	396.94	285.62	22.25
2	Eastern Grid	279.69	201.86	199.74	74.84	2.12
Total		981.51	621.05	596.68	360.46	24.37

Note: Generation-Load Summary for November 06, 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	922.61	335.46	334.77	564.86	0.69
2	Eastern Grid	291.18	76.70	74.55	236.77	2.15
Total		1,213.79	412.16	409.32	801.63	2.84

NOTE-Both WDC & EDC 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: November 7, 2022
Hours: 09:00 Hours

Date: 3-Nov-22 **Time:** 18:18hrs **Load(MW):** 600.914

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	220.37	Unit-I & 400kV Tala-Malbase line under Shutdown. Unit-IV on Standby. 400kV THP- Siliguri Line- II on Standby.
		Unit- II	107.59	400kV THP - Siliguri Line - II	0.00	
		Unit- III	119.83	400kV THP - Siliguri Line- IV	214.74	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	99.11	400kV Malbase - Siliguri Line	-46.53	
		Unit- VI	109.47	-	-	
		Total	436.00	Auxiliary Consumption & Transformation Losses at Generator end	0.20%	
2	720MW MHP	Unit-I	124.80	400kV MHP - Jigmeling Line - I	0.00	Unit-IV 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	119.72	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	164.76	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	77.98	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	76.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	34.81	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	53.21	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	8.10	
		-	-	80MVA, 220/132kV ICT - II (HV)	8.40	
		-	-	220kV Tsirang - Jigmeling Line	-2.30	
-	-	132kV Gelephu - Salakati Line	5.50			
Total	244.52	Auxiliary Consumption & Transformation Losses at Generator end	0.73%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	18.01	Unit-I under shutdown.
		Unit- II	77.27	220kV CHP - Birpara Line- II	17.93	
		Unit- III	80.33	220kV CHP - Malbase Line- III	83.25	
		Unit- IV	53.45	220kV CHP - Semtokha Line- IV	66.50	
		-	-	220kV Malbase - Birpara Line	-34.99	
		-	-	66kV CHP - Chumdo Line	17.53	
		-	-	66kV CHP - Gedu Line	6.27	
		-	-	3x3MVA, 66/11kV TFR	0.53	
Total	211.05	Auxiliary Consumption & Transformation Losses at Generator end	0.49%			
4	24MW BHP (U/S)	Unit- I	7.10	220kV BHP - Semtokha Line	57.89	
		Unit- II	6.80	66kV BHP - Lobeyasa Line	25.03	
		Total	13.90	220kV BHP - Tsirang Line	-42.28	
5	40MW BHP (L/S)	Unit- I	13.50	5MVA, 66/11kV TFR	0.41	
		Unit- II	13.50	30MVA ICT, 220/66kV (HV)	11.90	
		Total	27.00	Auxiliary Consumption & Transformation Losses at Generator end	-0.37%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	47.75	Unit-I on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	47.99	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	61.40	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	47.99	Auxiliary Consumption & Transformation Losses at Generator end	0.08%			
7	60MW KHP	Unit- I	14.66	132kV KHP - Nangkhoh Line	19.41	Unit-IV on Shutdown.
		Unit-II	14.69	132kV KHP - Kilikhar Line	23.54	
		Unit- III	14.72	5MVA, 132/11kV TFR	0.40	
		Unit- IV	0.00	132kV Motanga - Rangia Line	14.23	
		Total	44.07	Auxiliary Consumption & Transformation Losses at Generator end	1.63%	

Note: Generation-Load Summary (MW) for November 07, 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	735.94	348.71	346.90	389.53	1.81
2	Eastern Grid	288.59	178.54	176.04	107.75	2.50
Total		1,024.53	527.25	522.94	497.28	4.31

Note: Generation-Load Summary for November 07, 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	987.97	332.99	330.98	616.55	2.01
2	Eastern Grid	290.19	75.02	74.00	253.60	1.02
Total		1,278.16	408.01	404.98	870.15	3.03

NOTE-Motanga 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.