

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: November 5, 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	215.42	Unit-I & 400kV Tala-Malbase line under Shutdown. Unit-IV on Standby. 400kV THP- Siliguri Line- II on Standby.
		Unit- II	117.94	400kV THP - Siliguri Line - II	0.00	
		Unit- III	99.58	400kV THP - Siliguri Line- IV	208.69	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	98.66	400kV Malbase - Siliguri Line	-81.78	
		Unit- VI	109.38	-	-	
		Total	425.56	Auxiliary Consumption & Transformation Losses at Generator end	0.34%	
2	720MW MHP	Unit-I	120.12	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	148.44	
		Unit-IV	120.42	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	90.70	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	90.80	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	21.66	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	33.08	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	14.90	
		-	-	80MVA, 220/132kV ICT - II (HV)	15.30	
		-	-	220kV Tsirang - Jigmeling Line	2.73	
-	-	132kV Gelephu - Salakati Line	8.69			
Total	240.54	Auxiliary Consumption & Transformation Losses at Generator end	0.58%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	17.30	Unit-I on Shutdown.
		Unit- II	69.38	220kV CHP - Birpara Line- II	17.10	
		Unit- III	72.96	220kV CHP - Malbase Line- III	66.10	
		Unit- IV	69.39	220kV CHP - Semtokha Line- IV	80.10	
		-	-	220kV Malbase - Birpara Line	-23.79	
		-	-	66kV CHP - Chumdo Line	22.59	
		-	-	66kV CHP - Gedu Line	5.29	
		-	-	3x3MVA, 66/11kV TFR	1.60	
Total	211.73	Auxiliary Consumption & Transformation Losses at Generator end	0.78%			
4	24MW BHP (U/S)	Unit- I	6.93	220kV BHP - Semtokha Line	56.54	
		Unit- II	6.93	66kV BHP - Lobeyasa Line	27.56	
		Total	13.86	220kV BHP - Tsirang Line	-41.67	
5	40MW BHP (L/S)	Unit- I	14.55	5MVA, 66/11kV TFR	0.70	
		Unit- II	14.39	30MVA ICT, 220/66kV (HV)	14.40	
		Total	28.94	Auxiliary Consumption & Transformation Losses at Generator end	-0.77%	
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	48.04	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	63.00	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	48.04	Auxiliary Consumption & Transformation Losses at Gen. end	0.19%			
7	60MW KHP	Unit- I	14.52	132kV KHP - Nangkhor Line	19.48	Unit-IV under standby.
		Unit-II	14.52	132kV KHP - Kilikhar Line	23.19	
		Unit- III	14.62	5MVA, 132/11kV TFR	0.40	
		Unit- IV	0.00	132kV Motanga - Rangia Line	21.95	
		Total	43.66	Auxiliary Consumption & Transformation Losses at Generator end	1.35%	

Note: Generation-Load Summary (MW) for November 05, 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	728.13	372.46	369.60	352.94	2.86
2	Eastern Grid	284.20	201.55	199.56	85.38	1.99
Total		1,012.33	574.01	569.16	438.32	4.85

Note: Generation-Load Summary for November 05, 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	1,041.98	348.23	349.21	660.92	-0.98
2	Eastern Grid	292.60	83.61	80.60	241.82	3.01
Total		1,334.58	431.84	429.81	902.74	2.03

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.

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	215.34	Unit-I & 400kV Tala-Malbase line under Shutdown. Unit-IV on Standby. 400kV THP- Siliguri Line- II on Standby.
		Unit- II	119.56	400kV THP - Siliguri Line - II	0.00	
		Unit- III	100.55	400kV THP - Siliguri Line- IV	207.72	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	98.76	400kV Malbase - Siliguri Line	-57.79	
		Unit- VI	109.60	-	-	
		Total	428.47	Auxiliary Consumption & Transformation Losses at Generator end	1.26%	
2	720MW MHP	Unit-I	120.21	400kV MHP - Jigmeling Line - I	0.00	Unit-II 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	166.70	
		Unit-IV	125.18	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	77.40	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	71.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	36.73	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	56.98	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	9.30	
		-	-	80MVA, 220/132kV ICT - II (HV)	9.50	
		-	-	220kV Tsirang - Jigmeling Line	9.38	
-	-	132kV Gelephu - Salakati Line	6.03			
Total	245.39	Auxiliary Consumption & Transformation Losses at Generator end	0.53%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	16.30	Unit-I under shutdown.
		Unit- II	73.18	220kV CHP - Birpara Line- II	16.20	
		Unit- III	73.80	220kV CHP - Malbase Line- III	85.70	
		Unit- IV	66.87	220kV CHP - Semtokha Line- IV	70.29	
		-	-	220kV Malbase - Birpara Line	-39.77	
		-	-	66kV CHP - Chumdo Line	18.80	
		-	-	66kV CHP - Gedu Line	5.39	
		-	-	3x3MVA, 66/11kV TFR	1.00	
Total	213.85	Auxiliary Consumption & Transformation Losses at Generator end	0.08%			
4	24MW BHP (U/S)	Unit- I	7.20	220kV BHP - Semtokha Line	53.80	
		Unit- II	6.90	66kV BHP - Lobeysa Line	24.70	
		Total	14.10	220kV BHP - Tsirang Line	-36.51	
5	40MW BHP (L/S)	Unit- I	14.38	5MVA, 66/11kV TFR	0.45	
		Unit- II	14.11	30MVA ICT, 220/66kV (HV)	11.30	
		Total	28.49	Auxiliary Consumption & Transformation Losses at Generator end	0.35%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	48.23	Unit-I on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	48.50	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	61.70	
		-	-	5MVA, 220/33kV TFR	0.26	
Total	48.50	Auxiliary Consumption & Transformation Losses at Generator end	0.02%			
7	60MW KHP	Unit- I	14.07	132kV KHP - Nangkhoh Line	22.93	Unit-IV on Standby.
		Unit-II	14.10	132kV KHP - Kilikhar Line	18.34	
		Unit- III	14.08	5MVA, 132/11kV TFR	0.40	
		Unit- IV	0.00	132kV Motanga - Rangia Line	16.53	
		Total	42.25	Auxiliary Consumption & Transformation Losses at Generator end	1.37%	

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	733.41	366.03	360.29	358.00	5.74
2	Eastern Grid	287.64	180.75	178.88	116.27	1.87
Total		1,021.05	546.78	539.17	474.27	7.61

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	988.44	340.71	340.03	612.98	0.68
2	Eastern Grid	295.97	73.03	70.50	257.69	2.53
Total		1,284.41	413.74	410.53	870.67	3.21

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.
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