

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: December 15, 2022
Hours: 18:00 Hours

Date: 17-Nov-22 **Time:** 18:39:09hrs **Load(MW):** 616.55

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	85.72	Unit-I, II & III under Shutdown. 400kV THP - Siliguri Line II on Standby 400kV Tala-Siliguri line IV under 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	80.09	400kV THP - Malbase Line - III	170.06	
		Unit- V	107.36	400kV Malbase - Siliguri Line	61.74	
		Unit- VI	70.92	-	-	
		Total	258.37	Auxiliary Consumption & Transformation Losses at Generator end	1.00%	
2	720MW MHP	Unit-I	79.88	400kV MHP - Jigmeling Line - I	0.00	Unit-III & IV under shutdown. 400kV MHP-JLG Line I, II & III on Standby. 132kV MHP_Yurmo Line- I not in service. 400kV JLG_ALI line- I (Direct) on Standby. 400kV JLG_ALI Line- I (Interim) on Standby.
		Unit-II	79.85	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	76.01	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	82.36	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	116.38	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-16.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-25.07	
		-	-	80MVA, 220/132kV ICT - I (HV)	6.90	
		-	-	80MVA, 220/132kV ICT - II (HV)	7.13	
		-	-	220kV Tsirang - Jigmeling Line	-22.43	
-	-	132kV Gelephu - Salakati Line	-9.51			
Total	159.73	Auxiliary Consumption & Transformation Losses at Generator end	0.85%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I under Shutdown. Unit-II on Standby. 220kV CHP_Birpara Line I & 66kV CHP_GED Line on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	-6.26	
		Unit- III	73.91	220kV CHP - Malbase Line- III	31.26	
		Unit- IV	65.68	220kV CHP - Semtokha Line- IV	86.26	
		-	-	220kV Malbase - Birpara Line	-34.57	
		-	-	66kV CHP - Chumdo Line	26.06	
		-	-	66kV CHP - Gedu Line	0.00	
		-	-	3x3MVA, 66/11kV TFR	1.99	
Total	139.59	Auxiliary Consumption & Transformation Losses at Generator end	0.20%			
4	24MW BHP (U/S)	Unit- I	4.22	220kV BHP - Semtokha Line	61.80	
		Unit- II	4.22	66kV BHP - Lobeyasa Line	28.18	
		Total	8.44	220kV BHP - Tsirang Line	-64.26	
5	40MW BHP (L/S)	Unit- I	9.81	5MVA, 66/11kV TFR	0.79	
		Unit- II	8.77	30MVA ICT, 220/66kV (HV)	20.60	
		Total	18.58	Auxiliary Consumption & Transformation Losses at Generator end	1.89%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	29.24	Unit-I under Shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	29.51	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	62.85	
		-	-	5MVA, 220/33kV TFR	0.26	
Total	29.51	Auxiliary Consumption & Transformation Losses at Gen. end	0.03%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	9.54	Unit- I under Shutdown. Unit- IV on Standby.
		Unit-II	15.04	132kV KHP - Kilikhar Line	19.30	
		Unit- III	15.00	5MVA, 132/11kV TFR	0.80	
		Unit- IV	0.00	132kV Motanga - Rangia Line	12.49	
		Total	30.04	Auxiliary Consumption & Transformation Losses at Generator end	1.33%	

Note: Generation-Load Summary (MW) for December 15, 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	454.49	370.29	366.90	106.63	3.39
2	Eastern Grid	189.77	205.43	203.67	-38.09	1.76
Total		644.26	575.72	570.57	68.54	5.15

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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	471.96	375.74	373.55	132.62	2.19
2	Eastern Grid	168.59	89.58	87.36	42.61	2.22
Total		640.55	465.32	460.91	175.23	4.41

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: December 16, 2022
Hours: 09:00 Hours

Date: 17-Nov-22 **Time:** 18:39:09hrs **Load(MW):** 616.55

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	106.93	Unit-I, II & III under Shutdown. 400kV THP - Siliguri Line II on Standby 400kV Tala-Siliguri line IV under 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	118.83	400kV THP - Malbase Line - III	179.28	
		Unit- V	102.25	400kV Malbase - Siliguri Line	83.79	
		Unit- VI	70.31	-	-	
		Total	291.39	Auxiliary Consumption & Transformation Losses at Generator end	1.78%	
2	720MW MHP	Unit-I	50.98	400kV MHP - Jigmeling Line - I	11.23	Unit-III & IV under shutdown. 400kV MHP-JLG Line II & III on Standby. 132kV MHP_Yurmoo Line- I not in service. 400kV JLG_ALI line- I (Direct) on Standby. 400kV JLG_ALI Line- I (Interim) on Standby.
		Unit-II	45.21	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	11.45	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	72.99	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	95.63	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-29.09	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-44.08	
		-	-	80MVA, 220/132kV ICT - I (HV)	5.41	
		-	-	80MVA, 220/132kV ICT - II (HV)	5.51	
		-	-	220kV Tsirang - Jigmeling Line	-22.43	
-	-	132kV Gelephu - Salakati Line	-12.56			
Total	96.19	Auxiliary Consumption & Transformation Losses at Generator end	0.54%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I under Shutdown. Unit-II on Standby. 220kV CHP_Birpara Line I & 66kV CHP_GED Line on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	3.92	
		Unit- III	75.02	220kV CHP - Malbase Line- III	31.83	
		Unit- IV	68.94	220kV CHP - Semtokha Line- IV	82.22	
		-	-	220kV Malbase - Birpara Line	-17.68	
		-	-	66kV CHP - Chumdo Line	24.10	
		-	-	66kV CHP - Gedu Line	0.00	
		-	-	3x3MVA, 66/11kV TFR	1.35	
Total	143.96	Auxiliary Consumption & Transformation Losses at Generator end	0.38%			
4	24MW BHP (U/S)	Unit- I	4.50	220kV BHP - Semtokha Line	52.26	
		Unit- II	4.30	66kV BHP - Lobeyasa Line	25.35	
		Total	8.80	220kV BHP - Tsirang Line	-50.04	
5	40MW BHP (L/S)	Unit- I	9.50	5MVA, 66/11kV TFR	0.51	
		Unit- II	9.90	30MVA ICT, 220/66kV (HV)	17.36	
		Total	19.40	Auxiliary Consumption & Transformation Losses at Generator end	0.43%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	29.25	Unit-I under shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	29.50	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	61.68	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	29.50	Auxiliary Consumption & Transformation Losses at Generator end	0.17%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	16.94	Unit-I under Shutdown. Unit-IV on Standby.
		Unit-II	16.05	132kV KHP - Kilikhar Line	14.29	
		Unit- III	16.07	5MVA, 132/11kV TFR	0.64	
		Unit- IV	0.00	132kV Motanga - Rangia Line	4.29	
		Total	32.12	Auxiliary Consumption & Transformation Losses at Generator end	0.78%	

Note: Generation-Load Summary (MW) for December 16, 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	493.05	338.52	332.63	176.96	5.89
2	Eastern Grid	128.31	187.32	186.55	-81.44	0.77
Total		621.36	525.84	519.18	95.52	6.66

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1	Western Grid	466.98	362.27	359.24	129.62	3.03
2	Eastern Grid	171.15	69.16	67.36	77.08	1.80
Total		638.13	431.43	426.60	206.70	4.83

Note:-

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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