

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: December 20, 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	85.20	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	100.50	400kV THP - Malbase Line - III	160.80	
		Unit- V	78.52	400kV Malbase - Siliguri Line	61.67	
		Unit- VI	70.69	-	-	
		Total	249.71	Auxiliary Consumption & Transformation Losses at Generator end	1.49%	
2	720MW MHP	Unit-I	104.91	400kV MHP - Jigmeling Line - I	94.25	Unit-III & IV under shutdown. 400kV MHP-JLG Line II, III & IV 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	79.86	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	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	88.32	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	124.57	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-10.91	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-18.54	
		-	-	80MVA, 220/132kV ICT - I (HV)	6.31	
		-	-	80MVA, 220/132kV ICT - II (HV)	6.39	
		-	-	220kV Tsirang - Jigmeling Line	-47.72	
-	-	132kV Gelephu - Salakati Line	-14.27			
Total	184.77	Auxiliary Consumption & Transformation Losses at Generator end	1.19%			
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	-10.38	
		Unit- III	65.37	220kV CHP - Malbase Line- III	22.51	
		Unit- IV	60.39	220kV CHP - Semtokha Line- IV	83.70	
		-	-	220kV Malbase - Birpara Line	-33.59	
		-	-	66kV CHP - Chumdo Line	27.36	
		-	-	66kV CHP - Gedu Line	0.00	
		-	-	3x3MVA, 66/11kV TFR	2.12	
Total	125.76	Auxiliary Consumption & Transformation Losses at Generator end	0.36%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	68.20	BHP(U/S) unit I on standby.
		Unit- II	8.00	66kV BHP - Lobeyasa Line	28.15	
		Total	8.00	220kV BHP - Tsirang Line	-71.34	
5	40MW BHP (L/S)	Unit- I	9.00	5MVA, 66/11kV TFR	0.77	
		Unit- II	9.60	30MVA ICT, 220/66kV (HV)	20.99	
		Total	18.60	Auxiliary Consumption & Transformation Losses at Generator end	3.08%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	28.04	Unit-I under Shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	28.30	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	63.00	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	28.30	Auxiliary Consumption & Transformation Losses at Gen. end	0.21%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	9.20	Unit- I under Shutdown. Unit- III on Standby.
		Unit-II	13.56	132kV KHP - Kilikhar Line	16.97	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.71	
		Unit- IV	13.60	132kV Motanga - Rangia Line	-2.21	
		Total	27.16	Auxiliary Consumption & Transformation Losses at Generator end	1.03%	

Note: Generation-Load Summary (MW) for December 20, 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	430.37	375.19	370.15	102.90	5.04
2	Eastern Grid	211.93	210.14	207.66	-45.93	2.48
Total		642.30	585.33	577.81	56.97	7.52

Note: Generation-Load Summary for December 20, 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	437.39	360.42	358.17	126.98	2.25
2	Eastern Grid	152.95	89.12	86.99	13.82	2.13
Total		590.34	449.54	445.16	140.80	4.38

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:	December 21, 2022
Hours:	09:00 Hours

Date	Time	Load(MW)
17-Nov-22	18:39:09hrs	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	67.44	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	58.94	400kV THP - Malbase Line - III	136.85	
		Unit- V	78.33	400kV Malbase - Siliguri Line	47.17	
		Unit- VI	70.75	-	-	
		Total	208.02	Auxiliary Consumption & Transformation Losses at Generator end	1.79%	
2	720MW MHP	Unit-I	70.22	400kV MHP - Jigmeling Line - I	58.13	Unit-III & IV under shutdown. 400kV MHP-JLG Line II, III & IV 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	64.79	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	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	75.37	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	104.81	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-17.45	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-27.49	
		-	-	80MVA, 220/132kV ICT - I (HV)	3.43	
		-	-	80MVA, 220/132kV ICT - II (HV)	3.52	
		-	-	220kV Tsirang - Jigmeling Line	-35.86	
-	-	132kV Gelephu - Salakati Line	-16.34			
Total	135.01	Auxiliary Consumption & Transformation Losses at Generator end	1.12%			
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	-8.34	
		Unit- III	64.12	220kV CHP - Malbase Line- III	38.16	
		Unit- IV	61.51	220kV CHP - Semtokha Line- IV	71.39	
		-	-	220kV Malbase - Birpara Line	-42.71	
		-	-	66kV CHP - Chumdo Line	23.13	
		-	-	66kV CHP - Gedu Line	0.00	
		-	-	3x3MVA, 66/11kV TFR	1.40	
Total	125.63	Auxiliary Consumption & Transformation Losses at Generator end	-0.09%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	61.52	U/S unit-I on standby
		Unit- II	8.30	66kV BHP - Lobeyasa Line	24.92	
		Total	8.30	220kV BHP - Tsirang Line	-61.07	
5	40MW BHP (L/S)	Unit- I	8.47	5MVA, 66/11kV TFR	0.51	U/S unit-I on standby
		Unit- II	8.59	30MVA ICT, 220/66kV (HV)	17.10	
		Total	17.06	Auxiliary Consumption & Transformation Losses at Generator end	-2.05%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	27.92	Unit-I under shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	28.15	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	62.10	
		-	-	5MVA, 220/33kV TFR	0.22	
Total	28.15	Auxiliary Consumption & Transformation Losses at Generator end	0.03%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	15.06	Unit-I under Shutdown. Unit-III on Standby.
		Unit-II	15.10	132kV KHP - Kilikhar Line	14.28	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.50	
		Unit- IV	15.09	132kV Motanga - Rangia Line	0.00	
		Total	30.19	Auxiliary Consumption & Transformation Losses at Generator end	1.16%	

Note: Generation-Load Summary (MW) for December 21, 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	387.16	359.46	356.35	63.56	3.11
2	Eastern Grid	165.20	190.62	188.76	-61.28	1.86
Total		552.36	550.08	545.11	2.28	4.97

Note: Generation-Load Summary for December 21, 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	413.73	326.63	322.56	125.90	4.07
2	Eastern Grid	163.21	72.63	70.95	51.78	1.68
Total		576.94	399.26	393.51	177.68	5.75

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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