

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	December 24, 2022
Hours:	18:00 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	75.92	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	66.04	400kV THP - Malbase Line - III	166.30	
		Unit- V	98.62	400kV Malbase - Siliguri Line	52.46	
		Unit- VI	80.22	-	-	
		Total	244.88	Auxiliary Consumption & Transformation Losses at Generator end	1.09%	
2	720MW MHP	Unit-I	84.91	400kV MHP - Jigmeling Line - I	81.80	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	84.87	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	81.80	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	127.64	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-16.75	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-27.74	
		-	-	80MVA, 220/132kV ICT - I (HV)	6.73	
		-	-	80MVA, 220/132kV ICT - II (HV)	6.90	
		-	-	220kV Tsirang - Jigmeling Line	-50.76	
-	-	132kV Gelephu - Salakati Line	-13.15			
Total	169.78	Auxiliary Consumption & Transformation Losses at Generator end	3.64%			
3	336MW CHP	Unit- I	49.97	220kV CHP - Birpara Line- I	0.00	Unit-II & Unit-III on Standby. 220kV CHP_Birpara Line I & 66kV CHP_GED Line on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	-20.61	
		Unit- III	0.00	220kV CHP - Malbase Line- III	14.10	
		Unit- IV	50.50	220kV CHP - Semtokha Line- IV	78.04	
		-	-	220kV Malbase - Birpara Line	-43.40	
		-	-	66kV CHP - Chumdo Line	26.93	
		-	-	66kV CHP - Gedu Line	0.00	
		-	-	3x3MVA, 66/11kV TFR	1.90	
Total	100.47	Auxiliary Consumption & Transformation Losses at Generator end	0.11%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	69.70	BHP(U/S) Unit-I on Standby.
		Unit- II	7.95	66kV BHP - Lobeyasa Line	27.65	
		Total	7.95	220kV BHP - Tsirang Line	-72.83	
5	40MW BHP (L/S)	Unit- I	8.43	5MVA, 66/11kV TFR	0.76	
		Unit- II	8.42	30MVA ICT, 220/66kV (HV)	20.46	
		Total	16.85	Auxiliary Consumption & Transformation Losses at Generator end	-1.94%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	27.05	Unit-I under Shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	27.34	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	63.07	
		-	-	5MVA, 220/33kV TFR	0.29	
Total	27.34	Auxiliary Consumption & Transformation Losses at Gen. end	0.00%			
7	60MW KHP	Unit- I	13.45	132kV KHP - Nangkhor Line	7.47	Unit-III under Shutdown. Unit-II on Standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	18.48	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.77	
		Unit- IV	13.53	132kV Motanga - Rangia Line	1.94	
		Total	26.98	Auxiliary Consumption & Transformation Losses at Generator end	0.96%	

Note: Generation-Load Summary (MW) for December 24, 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	397.49	383.88	381.59	64.37	2.29
2	Eastern Grid	196.76	201.70	195.26	-55.70	6.44
Total		594.25	585.58	576.85	8.67	8.73

Note: Generation-Load Summary for December 24, 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	423.73	379.86	376.49	87.29	3.37
2	Eastern Grid	158.41	104.27	102.35	10.72	1.92
Total		582.14	484.13	478.84	98.01	5.29

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 25, 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	57.94	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	60.56	400kV THP - Malbase Line - III	120.11	
		Unit- V	59.09	400kV Malbase - Siliguri Line	39.92	
		Unit- VI	60.31	-	-	
		Total	179.96	Auxiliary Consumption & Transformation Losses at Generator end	1.06%	
2	720MW MHP	Unit-I	74.79	400kV MHP - Jigmeling Line - I	66.17	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	69.85	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	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	77.39	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	109.08	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-16.73	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-25.60	
		-	-	80MVA, 220/132kV ICT - I (HV)	3.46	
		-	-	80MVA, 220/132kV ICT - II (HV)	3.52	
		-	-	220kV Tsirang - Jigmeling Line	-39.25	
-	-	132kV Gelephu - Salakati Line	-16.41			
Total	144.64	Auxiliary Consumption & Transformation Losses at Generator end	0.75%			
3	336MW CHP	Unit- I	53.61	220kV CHP - Birpara Line- I	0.00	Unit-II & III on Standby. 220kV CHP_Birpara Line I & 66kV CHP_GED Line on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	-15.14	
		Unit- III	0.00	220kV CHP - Malbase Line- III	29.90	
		Unit- IV	49.96	220kV CHP - Semtokha Line- IV	64.98	
		-	-	220kV Malbase - Birpara Line	-47.25	
		-	-	66kV CHP - Chumdo Line	22.69	
		-	-	66kV CHP - Gedu Line	0.00	
		-	-	3x3MVA, 66/11kV TFR	1.40	
Total	103.57	Auxiliary Consumption & Transformation Losses at Generator end	-0.25%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	63.50	U/S unit-I on Standby
		Unit- II	8.20	66kV BHP - Lobeyasa Line	24.66	
		Total	8.20	220kV BHP - Tsirang Line	-63.40	
5	40MW BHP (L/S)	Unit- I	8.50	5MVA, 66/11kV TFR	0.48	U/S unit-I on Standby
		Unit- II	8.40	30MVA ICT, 220/66kV (HV)	17.09	
		Total	16.90	Auxiliary Consumption & Transformation Losses at Generator end	-0.56%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	27.27	Unit-I under shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	27.54	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	61.98	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	27.54	Auxiliary Consumption & Transformation Losses at Generator end	0.25%			
7	60MW KHP	Unit- I	11.02	132kV KHP - Nangkhoh Line	8.67	Unit-III under Shutdown. Unit-II on Standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	12.57	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.67	
		Unit- IV	11.03	132kV Motanga - Rangia Line	-3.71	
		Total	22.05	Auxiliary Consumption & Transformation Losses at Generator end	0.63%	

Note: Generation-Load Summary (MW) for December 25, 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	336.17	339.95	338.37	35.47	1.58
2	Eastern Grid	166.69	189.89	188.67	-62.45	1.22
Total		502.86	529.84	527.04	-26.98	2.80

Note: Generation-Load Summary for December 25, 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	423.23	352.05	349.48	97.35	2.57
2	Eastern Grid	155.79	88.06	86.28	41.56	1.79
Total		579.02	440.11	435.76	138.91	4.36

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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