

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	December 28, 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	66.27	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	120.71	400kV THP - Malbase Line - III	169.47	
		Unit- V	58.32	400kV Malbase - Siliguri Line	39.13	
		Unit- VI	60.42	-	-	
		Total	239.45	Auxiliary Consumption & Transformation Losses at Generator end	1.55%	
2	720MW MHP	Unit-I	74.90	400kV MHP - Jigmeling Line - I	58.06	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	74.90	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	90.23	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	127.16	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-26.91	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-42.05	
		-	-	80MVA, 220/132kV ICT - I (HV)	11.50	
		-	-	80MVA, 220/132kV ICT - II (HV)	11.80	
		-	-	220kV Tsirang - Jigmeling Line	-40.90	
-	-	132kV Gelephu - Salakati Line	-5.28			
Total	149.80	Auxiliary Consumption & Transformation Losses at Generator end	1.01%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I on Standby. Unit II under Shutdown. 220kV CHP_Birpara Line I & 66kV CHP_GED Line on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	-22.21	
		Unit- III	59.81	220kV CHP - Malbase Line- III	13.50	
		Unit- IV	59.35	220kV CHP - Semtokha Line- IV	96.34	
		-	-	220kV Malbase - Birpara Line	-45.71	
		-	-	66kV CHP - Chumdo Line	29.07	
		-	-	66kV CHP - Gedu Line	0.00	
		-	-	3x3MVA, 66/11kV TFR	2.27	
Total	119.16	Auxiliary Consumption & Transformation Losses at Generator end	0.16%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	57.73	BHP(U/S) Unit-I on Standby.
		Unit- II	8.00	66kV BHP - Lobeyasa Line	28.02	
		Total	8.00	220kV BHP - Tsirang Line	-63.07	
5	40MW BHP (L/S)	Unit- I	7.90	5MVA, 66/11kV TFR	1.19	BHP(U/S) Unit-I on Standby.
		Unit- II	7.90	30MVA ICT, 220/66kV (HV)	21.52	
		Total	15.80	Auxiliary Consumption & Transformation Losses at Generator end	-0.29%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	26.22	Unit-I under Shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	26.49	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	63.69	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	26.49	Auxiliary Consumption & Transformation Losses at Gen. end	0.26%			
7	60MW KHP	Unit- I	13.50	132kV KHP - Nangkhoh Line	7.37	Unit-III under Shutdown. Unit-IV on Standby.
		Unit-II	13.48	132kV KHP - Kilikhar Line	18.44	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.92	
		Unit- IV	0.00	132kV Motanga - Rangia Line	-1.79	
		Total	26.98	Auxiliary Consumption & Transformation Losses at Generator end	0.93%	

Note: Generation-Load Summary (MW) for December 28, 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	408.90	412.32	408.42	37.48	3.90
2	Eastern Grid	176.78	211.91	210.15	-76.03	1.76
Total		585.68	624.23	618.57	-38.55	5.66

Note: Generation-Load Summary for December 28, 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	432.35	376.65	372.96	102.13	3.69
2	Eastern Grid	158.43	103.89	102.32	8.11	1.57
Total		590.78	480.54	475.28	110.24	5.26

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 29, 2022
Hours: 09:00 Hours

Date **Time** **Load(MW)**
 28-Dec-22 18:03:26hrs 629.23

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	37.45	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	60.37	400kV THP - Malbase Line - III	138.56	
		Unit- V	58.18	400kV Malbase - Siliguri Line	13.53	
		Unit- VI	59.80	-	-	
		Total	178.35	Auxiliary Consumption & Transformation Losses at Generator end	1.31%	
2	720MW MHP	Unit-I	89.79	400kV MHP - Jigmeling Line - I	86.95	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	89.82	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	91.28	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	118.64	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-11.64	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	-18.31	
		-	-	80MVA, 220/132kV ICT - I (HV)	14.01	
		-	-	80MVA, 220/132kV ICT - II (HV)	14.35	
		-	-	220kV Tsirang - Jigmeling Line	-27.55	
-	-	132kV Gelephu - Salakati Line	4.70			
Total	179.61	Auxiliary Consumption & Transformation Losses at Generator end	0.77%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I on Standby. Unit-II under Shutdown. 220kV CHP_Birpara Line I & 66kV CHP_GED Line on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	-20.06	
		Unit- III	54.39	220kV CHP - Malbase Line- III	8.99	
		Unit- IV	51.87	220kV CHP - Semtokha Line- IV	89.99	
		-	-	220kV Malbase - Birpara Line	-38.86	
		-	-	66kV CHP - Chumdo Line	25.50	
		-	-	66kV CHP - Gedu Line	0.00	
		-	-	3x3MVA, 66/11kV TFR	1.61	
Total	106.26	Auxiliary Consumption & Transformation Losses at Generator end	0.22%			
4	24MW BHP (U/S)	Unit- I	0.00	220kV BHP - Semtokha Line	48.49	U/S unit-I on Standby
		Unit- II	7.65	66kV BHP - Lobeyasa Line	25.14	
		Total	7.65	220kV BHP - Tsirang Line	-51.00	
5	40MW BHP (L/S)	Unit- I	7.96	5MVA, 66/11kV TFR	0.55	U/S unit-I on Standby
		Unit- II	8.12	30MVA ICT, 220/66kV (HV)	18.00	
		Total	16.08	Auxiliary Consumption & Transformation Losses at Generator end	2.32%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	26.54	Unit-I under Shutdown. 220kV DHP_Dagapela Line on Standby.
		Unit-II	26.80	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	62.48	
		-	-	5MVA, 220/33kV TFR	0.25	
Total	26.80	Auxiliary Consumption & Transformation Losses at Generator end	0.04%			
7	60MW KHP	Unit- I	10.09	132kV KHP - Nangkhoh Line	3.74	Unit-III under Shutdown. Unit-IV on Standby.
		Unit-II	10.06	132kV KHP - Kilikhar Line	15.44	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.78	
		Unit- IV	0.00	132kV Motanga - Rangia Line	0.00	
		Total	20.15	Auxiliary Consumption & Transformation Losses at Generator end	0.94%	

Note: Generation-Load Summary (MW) for December 29, 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	335.14	370.63	367.50	-7.94	3.13
2	Eastern Grid	199.76	197.46	195.89	-25.25	1.57
Total		534.90	568.09	563.39	-33.19	4.70

Note: Generation-Load Summary for December 29, 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	480.82	365.44	362.93	148.69	2.51
2	Eastern Grid	159.02	90.93	89.44	34.78	1.49
Total		639.84	456.37	452.37	183.47	4.00

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.