

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	December 3, 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	0.00	Unit-I, II & III under Shutdown. 400kV Tala-Malbase line under Shutdown. 400kV THP- Siliguri Line- I on Standby.
		Unit- II	0.00	400kV THP - Siliguri Line - II	121.44	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	115.91	
		Unit- IV	79.31	400kV THP - Malbase Line - III	0.00	
		Unit- V	70.62	400kV Malbase - Siliguri Line	-97.73	
		Unit- VI	90.41	-	-	
		Total	240.34	Auxiliary Consumption & Transformation Losses at Generator end	1.24%	
2	720MW MHP	Unit-I	86.12	400kV MHP - Jigmeling Line - I	0.00	Unit-III & IV under shutdown. 400kV MHP-JLG Line I & II under Shutdown. 400kV MHP-JLG Line III on Standby. 132kV MHP_Yurmo Line-I not in service. 400kV JLG_ALI line- II (Direct) on Standby. 400kV JLG_ALI Line- I (Interim) on Standby.
		Unit-II	86.23	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	84.54	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	86.40	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	120.02	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	-13.82	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	-21.62	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	11.62	
		-	-	80MVA, 220/132kV ICT - II (HV)	11.91	
		-	-	220kV Tsirang - Jigmeling Line	-32.78	
-	-	132kV Gelephu - Salakati Line	2.75			
Total	172.35	Auxiliary Consumption & Transformation Losses at Generator end	0.82%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I under Shutdown. 220kV CHP_Birpara Line I & 66kV CHP_GED Line on Standby
		Unit- II	39.70	220kV CHP - Birpara Line- II	-22.85	
		Unit- III	39.90	220kV CHP - Malbase Line- III	31.60	
		Unit- IV	40.54	220kV CHP - Semtokha Line- IV	82.64	
		-	-	220kV Malbase - Birpara Line	-60.74	
		-	-	66kV CHP - Chumdo Line	25.96	
		-	-	66kV CHP - Gedu Line	0.00	
		-	-	3x3MVA, 66/11kV TFR	1.94	
Total	120.14	Auxiliary Consumption & Transformation Losses at Generator end	0.71%			
4	24MW BHP (U/S)	Unit- I	5.00	220kV BHP - Semtokha Line	62.80	
		Unit- II	4.80	66kV BHP - Lobeyasa Line	27.77	
		Total	9.80	220kV BHP - Tsirang Line	-61.24	
5	40MW BHP (L/S)	Unit- I	10.00	5MVA, 66/11kV TFR	0.86	
		Unit- II	10.30	30MVA ICT, 220/66kV (HV)	19.20	
		Total	20.30	Auxiliary Consumption & Transformation Losses at Generator end	-0.30%	
6	126MW DHP	Unit-I	32.82	220kV DHP - Tsirang Line	32.61	Unit-II on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	62.80	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	32.82	Auxiliary Consumption & Transformation Losses at Gen. end	0.03%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	11.09	Unit- I under Shutdown. Unit- III on Standby.
		Unit-II	15.54	132kV KHP - Kilikhar Line	18.92	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.82	
		Unit- IV	15.60	132kV Motanga - Rangia Line	8.70	
		Total	31.14	Auxiliary Consumption & Transformation Losses at Generator end	1.00%	

Note: Generation-Load Summary (MW) for December 03, 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	423.40	400.15	396.39	56.03	3.76
2	Eastern Grid	203.49	194.70	192.98	-23.99	1.72
Total		626.89	594.85	589.37	32.04	5.48

Note: Generation-Load Summary for December 03, 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	590.44	368.40	362.12	235.66	6.28
2	Eastern Grid	207.15	87.37	86.10	106.16	1.27
Total		797.59	455.77	448.22	341.82	7.55

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 4, 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	0.00	Unit-I, II & III under Shutdown. 400kV Tala-Malbase line under Shutdown. 400kV THP - Siliguri Line - I on Standby.
		Unit- II	0.00	400kV THP - Siliguri Line - II	135.72	
		Unit- III	0.00	400kV THP - Siliguri Line - IV	131.40	
		Unit- IV	80.42	400kV THP - Malbase Line - III	0.00	
		Unit- V	99.10	400kV Malbase - Siliguri Line	-67.73	
		Unit- VI	90.33	-	-	
		Total	269.85	Auxiliary Consumption & Transformation Losses at Generator end	1.01%	
2	720MW MHP	Unit-I	110.82	400kV MHP - Jigmeling Line - I	0.00	Unit-III & IV under shutdown. 400kV MHP-JLG Line I & II under Shutdown. 400kV MHP-JLG Line III on Standby. 132kV MHP_Yurmo Line-I not in service. 400kV JLG_ALI line- II (Direct) on Standby. 400kV JLG_ALI Line- I (Interim) on Standby.
		Unit-II	109.83	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	139.33	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	80.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	101.17	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	12.36	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	21.57	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	6.90	
		-	-	80MVA, 220/132kV ICT - II (HV)	7.05	
		-	-	220kV Tsirang - Jigmeling Line	-27.04	
-	-	132kV Gelephu - Salakati Line	-0.16			
Total	220.65	Auxiliary Consumption & Transformation Losses at Generator end	0.60%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	0.00	Unit-I under Shutdown. 220kV CHP_Birpara Line I & 66kV CHP_GED Line on Standby.
		Unit- II	44.99	220kV CHP - Birpara Line- II	-9.52	
		Unit- III	50.39	220kV CHP - Malbase Line- III	55.38	
		Unit- IV	41.22	220kV CHP - Semtokha Line- IV	66.77	
		-	-	220kV Malbase - Birpara Line	-57.57	
		-	-	66kV CHP - Chumdo Line	21.70	
		-	-	66kV CHP - Gedu Line	0.00	
		-	-	3x3MVA, 66/11kV TFR	1.54	
Total	136.60	Auxiliary Consumption & Transformation Losses at Generator end	0.53%			
4	24MW BHP (U/S)	Unit- I	4.72	220kV BHP - Semtokha Line	61.48	
		Unit- II	4.72	66kV BHP - Lobeysa Line	24.65	
		Total	9.44	220kV BHP - Tsirang Line	-56.70	
5	40MW BHP (L/S)	Unit- I	10.02	5MVA, 66/11kV TFR	0.48	
		Unit- II	9.91	30MVA ICT, 220/66kV (HV)	15.70	
		Total	19.93	Auxiliary Consumption & Transformation Losses at Generator end	-1.84%	
6	126MW DHP	Unit-I	32.82	220kV DHP - Tsirang Line	32.61	Unit-II on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	61.55	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	32.82	Auxiliary Consumption & Transformation Losses at Generator end	0.03%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	15.77	Unit-I under Shutdown. Unit-III on Standby.
		Unit-II	16.06	132kV KHP - Kilikhar Line	15.63	
		Unit- III	0.00	5MVA, 132/11kV TFR	0.54	
		Unit- IV	16.10	132kV Motanga - Rangia Line	5.72	
		Total	32.16	Auxiliary Consumption & Transformation Losses at Generator end	0.68%	

Note: Generation-Load Summary (MW) for December 04, 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	468.64	363.38	360.45	132.30	2.93
2	Eastern Grid	252.81	186.28	184.74	39.49	1.54
Total		721.45	549.66	545.19	171.79	4.47

Note: Generation-Load Summary for December 04, 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	566.36	345.04	336.97	220.63	8.07
2	Eastern Grid	208.54	76.83	74.59	132.40	2.24
Total		774.90	421.87	411.56	353.03	10.31

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.
- ii) The clocks of all the locations are not synchronized.

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