

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	March 27, 2022
Hours:	18:00 Hours

Date	Time	Load(MW)
12-Jan-22	18:00hrs	492.25

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 maintenance. 400kV THP- Siliguri - I under Shutdown. 400kV THP- Siliguri - II under Breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	86.54	
		Unit- IV	75.50	400kV THP - Malbase Line - III	163.71	
		Unit- V	68.17	400kV Malbase - Siliguri Line	69.62	
		Unit- VI	110.35	-	-	
		Total	254.02	Auxiliary Consumption & Transformation Losses at Generator end	1.48%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	135.52	Unit-I & II under Annual Maintenance. 400kV MHP-JLG Line II,III & IV on Standby. 132kV MHP_Yurmo line I & II not in Service. 400kV JLG-ALI I (Interim) on Standby. 400kV JLG_ALI Line II (Direct) on Standby
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	60.44	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	75.33	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	78.84	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	20.36	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	33.58	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	19.49	
		-	-	80MVA, 220/132kV ICT - II (HV)	19.78	
		-	-	220kV Tsirang - Jigmeling Line	-54.04	
-	-	132kV Gelephu - Salakati Line	-8.12			
Total	135.77	Auxiliary Consumption & Transformation Losses at Generator end	0.18%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	9.42	Unit-I under Annual Maintenance. Unit II on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	9.37	
		Unit- III	72.02	220kV CHP - Malbase Line- III	38.57	
		Unit- IV	57.04	220kV CHP - Semtokha Line- IV	51.91	
		-	-	220kV Malbase - Birpara Line	-14.73	
		-	-	66kV CHP - Chumdo Line	13.53	
		-	-	66kV CHP - Gedu Line	2.93	
		-	-	3x3MVA, 66/11kV TFR	1.16	
Total	129.06	Auxiliary Consumption & Transformation Losses at Generator end	1.68%			
4	24MW BHP (U/S)	Unit- I	6.60	220kV BHP - Semtokha Line	52.90	U/S Unit-II under AMP & L/S Unit-II on Standby.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	21.20	
		Total	6.60	220kV BHP - Tsirang Line	-51.86	
5	40MW BHP (L/S)	Unit- I	16.00	5MVA, 66/11kV TFR	0.50	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	15.23	
		Total	16.00	Auxiliary Consumption & Transformation Losses at Generator end	-0.62%	
6	126MW DHP	Unit-I	23.33	220kV DHP - Tsirang Line	0.00	Unit-II under Annual Maintenance. 220kV DHP_Tsirang Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	23.13	
		-	-	220kV Jigmeling - Dagapela Line	-15.67	
		-	-	5MVA, 220/33kV TFR	0.15	
Total	23.33	Auxiliary Consumption & Transformation Losses at Gen. end	0.21%			
7	60MW KHP	Unit- I	13.43	132kV KHP - Nangkhoh Line	11.95	Unit-II & IV on Standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	14.11	
		Unit- III	13.49	5MVA, 132/11kV TFR	0.56	
		Unit- IV	0.00	132kV Motanga - Rangia Line	5.26	
		Total	26.92	Auxiliary Consumption & Transformation Losses at Generator end	1.11%	

Note: Generation-Load Summary (MW) for March 27, 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	429.01	322.83	316.98	160.22	5.85
2	Eastern Grid	162.69	57.57	57.02	51.08	0.55
Total		591.70	380.40	374.00	211.30	6.40

Note: Generation-Load Summary for March 27, 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	470.48	269.41	264.01	164.61	5.40
2	Eastern Grid	151.31	71.12	69.90	116.65	1.22
Total		621.79	340.53	333.91	281.26	6.62

NOTE- BHP data collected from site.

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: March 28, 2022
Hours: 09:00 Hours

Date: 12-Jan-22 **Time:** 18:00hrs **Load(MW):** 492.25

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 maintenance. 400kV THP- Siliguri - I under Shutdown. 400kV THP- Siliguri - II under Breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	82.77	
		Unit- IV	79.97	400kV THP - Malbase Line - III	163.42	
		Unit- V	68.88	400kV Malbase - Siliguri Line	66.34	
		Unit- VI	99.21	-	-	
		Total	248.06	Auxiliary Consumption & Transformation Losses at Generator end	0.75%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	180.14	Unit-I & II under Annual Maintenance. 400kV MHP-JLG Line II,III & IV on Standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG-ALI I (Interim) on Standby. 400kV JLG_ALI Line II (Direct) on Standby
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	85.25	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	95.40	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	79.85	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	37.09	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	59.60	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	21.87	
		-	-	80MVA, 220/132kV ICT - II (HV)	22.22	
		-	-	220kV Tsirang - Jigmeling Line	-52.17	
-	-	132kV Gelephu - Salakati Line	0.37			
Total	180.65	Auxiliary Consumption & Transformation Losses at Generator end	0.28%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	5.85	Unit-I under Annual Maintenance. Unit II on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	5.91	
		Unit- III	60.59	220kV CHP - Malbase Line- III	43.60	
		Unit- IV	67.04	220kV CHP - Semtokha Line- IV	53.80	
		-	-	220kV Malbase - Birpara Line	-23.89	
		-	-	66kV CHP - Chumdo Line	12.73	
		-	-	66kV CHP - Gedu Line	3.30	
		-	-	3x3MVA, 66/11kV TFR	1.10	
Total	127.63	Auxiliary Consumption & Transformation Losses at Generator end	1.05%			
4	24MW BHP (U/S)	Unit- I	6.90	220kV BHP - Semtokha Line	49.50	U/S Unit-II under Annual maintenance & L/S Unit-II on Standby
		Unit- II	0.00	66kV BHP - Lobeysa Line	21.13	
		Total	6.90	220kV BHP - Tsirang Line	-48.88	
5	40MW BHP (L/S)	Unit- I	15.00	5MVA, 66/11kV TFR	0.40	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	14.77	
		Total	15.00	Auxiliary Consumption & Transformation Losses at Generator end	-1.14%	
6	126MW DHP	Unit-I	23.71	220kV DHP - Tsirang Line	0.00	Unit-II under Annual maintenance. 220kV DHP_Tsirang Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	23.50	
		-	-	220kV Jigmeling - Dagapela Line	-15.65	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	23.71	Auxiliary Consumption & Transformation Losses at Generator end	0.04%			
7	60MW KHP	Unit- I	11.31	132kV KHP - Nangkhoh Line	18.25	Unit-IV on Standby.
		Unit-II	11.36	132kV KHP - Kilikhar Line	14.73	
		Unit- III	11.32	5MVA, 132/11kV TFR	0.60	
		Unit- IV	0.00	132kV Motanga - Rangia Line	5.32	
		Total	33.99	Auxiliary Consumption & Transformation Losses at Generator end	1.21%	

Note: Generation-Load Summary (MW) for March 28, 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	421.30	336.49	333.52	136.98	2.97
2	Eastern Grid	214.64	60.09	59.17	102.38	0.92
Total		635.94	396.58	392.69	239.36	3.89

Note: Generation-Load Summary for March 28, 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	237.80	226.80	221.02	-2.57	5.78
2	Eastern Grid	172.17	58.47	55.89	127.27	2.58
Total		409.97	285.27	276.91	124.70	8.36

NOTE-BHP data collected from Site.

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 - 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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