

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: February 28, 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	THP under total 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	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	0.00	400kV Malbase - Siliguri Line	-50.91	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	229.20	Unit-I & II under Annual Maintenance .400kV MHP-JLG Line III under Annual Maintenance . 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo 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	110.41	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	120.14	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)	93.91	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	52.36	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	75.04	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	14.75	
		-	-	80MVA, 220/132kV ICT - II (HV)	14.96	
		-	-	220kV Tsirang - Jigmeling Line	-77.62	
-	-	132kV Gelephu - Salakati Line	-9.32			
Total	230.55	Auxiliary Consumption & Transformation Losses at Generator end	0.59%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	3.01	Unit-I Under maintenance. Unit IV on standby
		Unit- II	82.69	220kV CHP - Birpara Line- II	3.20	
		Unit- III	79.49	220kV CHP - Malbase Line- III	70.04	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	65.22	
		-	-	220kV Malbase - Birpara Line	-49.92	
		-	-	66kV CHP - Chumdo Line	18.40	
		-	-	66kV CHP - Gedu Line	2.70	
		-	-	3x3MVA, 66/11kV TFR	1.80	
Total	162.18	Auxiliary Consumption & Transformation Losses at Generator end	-1.35%			
4	24MW BHP (U/S)	Unit- I	6.70	220kV BHP - Semtokha Line	74.30	U/S Unit-II & L/S Unit-II on Standby.
		Unit- II	0.00	66kV BHP - Lobeyasa Line	24.19	
		Total	6.70	220kV BHP - Tsirang Line	-73.15	
5	40MW BHP (L/S)	Unit- I	20.00	5MVA, 66/11kV TFR	0.97	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	19.28	
		Total	20.00	Auxiliary Consumption & Transformation Losses at Generator end	1.46%	
6	126MW DHP	Unit-I	24.70	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	24.50	
		-	-	220kV Jigmeling - Dagapela Line	-15.09	
		-	-	5MVA, 220/33kV TFR	0.18	
Total	24.70	Auxiliary Consumption & Transformation Losses at Gen. end	0.08%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhoh Line	12.90	Unit-I under AMP & Unit-II on Standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	16.94	
		Unit- III	14.95	5MVA, 132/11kV TFR	0.18	
		Unit- IV	14.99	132kV Motanga - Rangia Line	1.35	
		Total	29.94	Auxiliary Consumption & Transformation Losses at Generator end	-0.27%	

Note: Generation-Load Summary (MW) for February 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	213.58	385.82	387.60	-94.62	-1.78
2	Eastern Grid	260.49	63.44	62.17	119.43	1.27
Total		474.07	449.26	449.77	24.81	-0.51

Note: Generation-Load Summary for February 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	250.37	244.77	243.85	-5.17	0.92
2	Eastern Grid	117.56	75.15	74.65	53.18	0.50
Total		367.93	319.92	318.50	48.01	1.42

NOTE- BHP, CHP & DHP 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 1, 2022
Hours:	09:00 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	THP under total 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	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	0.00	400kV Malbase - Siliguri Line	-50.00	
		Unit- VI	0.00	-	-	
		Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.00%	
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	194.45	Unit-I & II under Annual Maintenance. 400kV MHP-JLG Line III under Annual Maintenance. 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo 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	85.20	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	110.41	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)	86.78	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	40.72	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	63.84	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	18.29	
		-	-	80MVA, 220/132kV ICT - II (HV)	18.57	
		-	-	220kV Tsirang - Jigmeling Line	-66.08	
-	-	132kV Gelephu - Salakati Line	-7.83			
Total	195.61	Auxiliary Consumption & Transformation Losses at Generator end	0.59%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	6.49	Unit-IV standby. Unit-I under Annual Maintenance.
		Unit- II	82.44	220kV CHP - Birpara Line- II	6.31	
		Unit- III	80.68	220kV CHP - Malbase Line- III	69.76	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	58.02	
		-	-	220kV Malbase - Birpara Line	-42.94	
		-	-	66kV CHP - Chumdo Line	15.88	
		-	-	66kV CHP - Gedu Line	2.99	
		-	-	3x3MVA, 66/11kV TFR	1.48	
Total	163.12	Auxiliary Consumption & Transformation Losses at Generator end	1.34%			
4	24MW BHP (U/S)	Unit- I	6.90	220kV BHP - Semtokha Line	60.40	U/S Unit-I & L/S Unit-II on Standby.
		Unit- II	0.00	66kV BHP - Lobeyssa Line	23.38	
		Total	6.90	220kV BHP - Tsirang Line	-61.92	
5	40MW BHP (L/S)	Unit- I	15.00	5MVA, 66/11kV TFR	0.49	
		Unit- II	0.00	30MVA ICT, 220/66kV (HV)	17.12	
		Total	15.00	Auxiliary Consumption & Transformation Losses at Generator end	-2.05%	
6	126MW DHP	Unit-I	26.01	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	25.79	
		-	-	220kV Jigmeling - Dagapela Line	-16.85	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	26.01	Auxiliary Consumption & Transformation Losses at Generator end	0.08%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	8.86	Unit-I under AMP. Unit-IV on Standby.
		Unit-II	12.55	132kV KHP - Kilikhar Line	15.26	
		Unit- III	12.53	5MVA, 132/11kV TFR	0.63	
		Unit- IV	0.00	132kV Motanga - Rangia Line	7.55	
		Total	25.08	Auxiliary Consumption & Transformation Losses at Generator end	1.32%	

Note: Generation-Load Summary (MW) for March 01, 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	211.03	357.25	355.49	-80.14	1.76
2	Eastern Grid	220.69	50.33	48.84	104.28	1.49
Total		431.72	407.58	404.33	24.14	3.25

Note: Generation-Load Summary for March 01, 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	258.98	240.64	237.84	9.80	2.80
2	Eastern Grid	132.90	66.39	65.07	75.05	1.32
Total		391.88	307.03	302.91	84.85	4.12

NOTE-BHP data collected from Site.

- 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:
 - 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.
 - The clocks of all the locations are not synchronized.
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