

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	June 2, 2022
Hours:	19:00 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-III on standby. Unit I & V under maintenance. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	139.21	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	152.19	
		Unit- IV	119.32	400kV THP - Malbase Line - III	242.02	
		Unit- V	0.00	400kV Malbase - Siliguri Line	134.72	
		Unit- VI	139.31	-	-	
		Total	397.84	Auxiliary Consumption & Transformation Losses at Generator end	0.91%	
2	720MW MHP	Unit-I	150.15	400kV MHP - Jigmeling Line - I	0.00	Unit- II & IV on standby 400kV MHP-JLG Line I & II on Standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	150.98	400kV MHP - Jigmeling Line - III	150.46	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	149.50	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	85.65	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	84.14	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	126.73	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	29.33	
		-	-	80MVA, 220/132kV ICT - II (HV)	30.01	
		-	-	220kV Tsirang - Jigmeling Line	-4.42	
-	-	132kV Gelephu - Salakati Line	8.06			
Total	301.13	Auxiliary Consumption & Transformation Losses at Generator end	0.39%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	36.08	Unit-I on standby.
		Unit- II	64.12	220kV CHP - Birpara Line- II	36.11	
		Unit- III	66.33	220kV CHP - Malbase Line- III	57.01	
		Unit- IV	69.74	220kV CHP - Semtokha Line- IV	50.49	
		-	-	220kV Malbase - Birpara Line	14.92	
		-	-	66kV CHP - Chumdo Line	14.04	
		-	-	66kV CHP - Gedu Line	4.27	
		-	-	3x3MVA, 66/11kV TFR	1.24	
Total	200.19	Auxiliary Consumption & Transformation Losses at Generator end	0.47%			
4	24MW BHP (U/S)	Unit- I	7.40	220kV BHP - Semtokha Line	52.80	
		Unit- II	7.10	66kV BHP - Lobeyasa Line	23.47	
		Total	14.50	220kV BHP - Tsirang Line	-36.46	
5	40MW BHP (L/S)	Unit- I	12.90	5MVA, 66/11kV TFR	0.54	
		Unit- II	13.00	30MVA ICT, 220/66kV (HV)	9.83	
		Total	25.90	Auxiliary Consumption & Transformation Losses at Generator end	0.12%	
6	126MW DHP	Unit-I	34.83	220kV DHP - Tsirang Line	34.60	Unit-II on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	22.14	
		-	-	5MVA, 220/33kV TFR	0.22	
Total	34.83	Auxiliary Consumption & Transformation Losses at Gen. end	0.03%			
7	60MW KHP	Unit- I	16.48	132kV KHP - Nangkhoh Line	41.39	
		Unit-II	16.41	132kV KHP - Kilikhar Line	23.45	
		Unit- III	16.53	5MVA, 132/11kV TFR	0.59	
		Unit- IV	16.46	132kV Motanga - Rangia Line	52.04	
		Total	65.88	Auxiliary Consumption & Transformation Losses at Generator end	0.68%	

Note: Generation-Load Summary (MW) for June 02, 2022 at 19:00hrs.

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	673.26	303.66	299.02	374.02	4.64
2	Eastern Grid	367.01	91.62	90.00	270.97	1.62
Total		1,040.27	395.28	389.02	644.99	6.26

Note: Generation-Load Summary for June 02, 2021 at 19:00hrs.

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	979.04	237.66	227.18	699.54	10.48
2	Eastern Grid	482.09	72.89	69.88	451.04	3.01
Total		1,461.13	310.55	297.06	1,150.58	13.49

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.
- 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:	June 3, 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	Unit- I, III & V on standby. Unit-IV under breakdown 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	167.45	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	137.37	
		Unit- IV	0.00	400kV THP - Malbase Line - III	193.54	
		Unit- V	0.00	400kV Malbase - Siliguri Line	126.73	
		Unit- VI	169.34	-	-	
		Total	336.79	Auxiliary Consumption & Transformation Losses at Generator end	1.75%	
2	720MW MHP	Unit-I	135.25	400kV MHP - Jigmeling Line - I	0.00	Unit- II on standby. 400kV MHP-JLG Line I & II under shutdown. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	135.90	400kV MHP - Jigmeling Line - III	203.39	
		Unit-IV	135.62	400kV MHP - Jigmeling Line - IV	202.25	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	62.90	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	134.42	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	201.86	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	23.89	
		-	-	80MVA, 220/132kV ICT - II (HV)	24.40	
		-	-	220kV Tsirang - Jigmeling Line	7.33	
-	-	132kV Gelephu - Salakati Line	12.58			
Total	406.77	Auxiliary Consumption & Transformation Losses at Generator end	0.28%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	40.37	Unit-I on standby
		Unit- II	71.22	220kV CHP - Birpara Line- II	40.48	
		Unit- III	71.94	220kV CHP - Malbase Line- III	82.79	
		Unit- IV	70.84	220kV CHP - Semtokha Line- IV	33.02	
		-	-	220kV Malbase - Birpara Line	2.04	
		-	-	66kV CHP - Chumdo Line	11.30	
		-	-	66kV CHP - Gedu Line	5.04	
		-	-	3x3MVA, 66/11kV TFR	0.90	
Total	214.00	Auxiliary Consumption & Transformation Losses at Generator end	0.05%			
4	24MW BHP (U/S)	Unit- I	9.00	220kV BHP - Semtokha Line	61.80	
		Unit- II	8.60	66kV BHP - Lobeyasa Line	22.98	
		Total	17.60	220kV BHP - Tsirang Line	-35.73	
5	40MW BHP (L/S)	Unit- I	16.00	5MVA, 66/11kV TFR	0.36	
		Unit- II	16.00	30MVA ICT, 220/66kV (HV)	6.29	
		Total	32.00	Auxiliary Consumption & Transformation Losses at Generator end	0.38%	
6	126MW DHP	Unit-I	23.21	220kV DHP - Tsirang Line	45.79	220kV DHP_Dagapela Line on Standby.
		Unit-II	22.97	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	21.99	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	46.18	Auxiliary Consumption & Transformation Losses at Generator end	0.41%			
7	60MW KHP	Unit- I	16.51	132kV KHP - Nangkhoh Line	44.89	
		Unit-II	16.54	132kV KHP - Kilikhar Line	20.20	
		Unit- III	16.52	5MVA, 132/11kV TFR	0.41	
		Unit- IV	16.56	132kV Motanga - Rangia Line	50.50	
		Total	66.13	Auxiliary Consumption & Transformation Losses at Generator end	0.95%	

Note: Generation-Load Summary (MW) for June 03, 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	646.57	292.25	285.89	346.99	6.36
2	Eastern Grid	472.90	80.87	79.11	399.36	1.76
Total		1,119.47	373.12	365.00	746.35	8.12

Note: Generation-Load Summary for June 03, 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	852.27	247.44	233.17	570.48	14.27
2	Eastern Grid	517.10	65.24	62.15	486.21	3.09
Total		1,369.37	312.68	295.32	1,056.69	17.36

NOTE-BHP & All EAST load 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.