

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	June 3, 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	117.45	400kV THP - Siliguri Line - I	0.00	Unit-III on standby. Unit V under maintenance. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	69.08	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	163.25	
		Unit- IV	70.46	400kV THP - Malbase Line - III	247.92	
		Unit- V	0.00	400kV Malbase - Siliguri Line	145.56	
		Unit- VI	159.42	-	-	
		Total	416.41	Auxiliary Consumption & Transformation Losses at Generator end	1.26%	
2	720MW MHP	Unit-I	100.26	400kV MHP - Jigmeling Line - I	169.08	Unit- II on standby 400kV MHP-JLG Line II & IV 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	130.80	400kV MHP - Jigmeling Line - III	170.23	
		Unit-IV	110.55	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)	86.24	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	100.28	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	149.27	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	26.16	
		-	-	80MVA, 220/132kV ICT - II (HV)	26.60	
		-	-	220kV Tsirang - Jigmeling Line	-11.97	
-	-	132kV Gelephu - Salakati Line	7.09			
Total	341.61	Auxiliary Consumption & Transformation Losses at Generator end	0.67%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	37.33	Unit-I on standby.
		Unit- II	71.76	220kV CHP - Birpara Line- II	37.51	
		Unit- III	72.78	220kV CHP - Malbase Line- III	62.47	
		Unit- IV	60.80	220kV CHP - Semtokha Line- IV	46.49	
		-	-	220kV Malbase - Birpara Line	13.04	
		-	-	66kV CHP - Chumdo Line	13.32	
		-	-	66kV CHP - Gedu Line	4.58	
		-	-	3x3MVA, 66/11kV TFR	1.13	
Total	205.34	Auxiliary Consumption & Transformation Losses at Generator end	1.22%			
4	24MW BHP (U/S)	Unit- I	6.70	220kV BHP - Semtokha Line	55.60	
		Unit- II	6.30	66kV BHP - Lobeysa Line	22.01	
		Total	13.00	220kV BHP - Tsirang Line	-41.31	
5	40MW BHP (L/S)	Unit- I	12.00	5MVA, 66/11kV TFR	0.74	
		Unit- II	12.10	30MVA ICT, 220/66kV (HV)	10.36	
		Total	24.10	Auxiliary Consumption & Transformation Losses at Generator end	0.16%	
6	126MW DHP	Unit-I	33.01	220kV DHP - Tsirang Line	32.69	Unit-II on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	21.63	
		-	-	5MVA, 220/33kV TFR	0.30	
Total	33.01	Auxiliary Consumption & Transformation Losses at Gen. end	0.06%			
7	60MW KHP	Unit- I	16.55	132kV KHP - Nangkhoh Line	42.68	
		Unit-II	16.55	132kV KHP - Kilikhar Line	22.22	
		Unit- III	16.43	5MVA, 132/11kV TFR	0.59	
		Unit- IV	16.65	132kV Motanga - Rangia Line	51.74	
		Total	66.18	Auxiliary Consumption & Transformation Losses at Generator end	1.04%	

Note: Generation-Load Summary (MW) for June 03, 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	691.86	307.14	299.31	396.69	7.83
2	Eastern Grid	407.79	87.44	84.45	308.38	2.99
Total		1,099.65	394.58	383.76	705.07	10.82

Note: Generation-Load Summary for June 03, 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	826.93	214.96	206.98	576.80	7.98
2	Eastern Grid	456.65	71.63	69.26	420.19	2.37
Total		1,283.58	286.59	276.24	996.99	10.35

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 4, 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	88.99	400kV THP - Siliguri Line - I	0.00	Unit-III on standby. Unit V under maintenance. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	68.92	400kV THP - Siliguri Line - II	0.00	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	146.32	
		Unit- IV	69.25	400kV THP - Malbase Line - III	215.93	
		Unit- V	0.00	400kV Malbase - Siliguri Line	134.01	
		Unit- VI	139.24	-	-	
		Total	366.40	Auxiliary Consumption & Transformation Losses at Generator end	1.13%	
2	720MW MHP	Unit-I	100.11	400kV MHP - Jigmeling Line - I	169.02	Unit- II on standby 400kV MHP-JLG Line II & IV 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	130.75	400kV MHP - Jigmeling Line - III	170.26	
		Unit-IV	110.37	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)	61.48	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	109.30	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	164.01	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	21.63	
		-	-	80MVA, 220/132kV ICT - II (HV)	22.07	
		-	-	220kV Tsirang - Jigmeling Line	2.72	
-	-	132kV Gelephu - Salakati Line	9.10			
Total	341.23	Auxiliary Consumption & Transformation Losses at Generator end	0.57%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	32.19	Unit-I on standby
		Unit- II	63.96	220kV CHP - Birpara Line- II	32.09	
		Unit- III	67.47	220kV CHP - Malbase Line- III	71.05	
		Unit- IV	60.90	220kV CHP - Semtokha Line- IV	37.59	
		-	-	220kV Malbase - Birpara Line	-3.48	
		-	-	66kV CHP - Chumdo Line	11.75	
		-	-	66kV CHP - Gedu Line	4.09	
		-	-	3x3MVA, 66/11kV TFR	0.78	
Total	192.33	Auxiliary Consumption & Transformation Losses at Generator end	1.45%			
4	24MW BHP (U/S)	Unit- I	8.60	220kV BHP - Semtokha Line	57.40	
		Unit- II	8.30	66kV BHP - Lobeysa Line	22.64	
		Total	16.90	220kV BHP - Tsirang Line	-39.41	
5	40MW BHP (L/S)	Unit- I	12.30	5MVA, 66/11kV TFR	0.39	
		Unit- II	12.10	30MVA ICT, 220/66kV (HV)	6.53	
		Total	24.40	Auxiliary Consumption & Transformation Losses at Generator end	0.68%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	44.57	DHP Unit I on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	44.96	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	21.70	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	44.96	Auxiliary Consumption & Transformation Losses at Generator end	0.42%			
7	60MW KHP	Unit- I	16.52	132kV KHP - Nangkhoh Line	44.41	
		Unit-II	16.55	132kV KHP - Kilikhar Line	20.82	
		Unit- III	16.56	5MVA, 132/11kV TFR	0.35	
		Unit- IV	16.56	132kV Motanga - Rangia Line	41.88	
		Total	66.19	Auxiliary Consumption & Transformation Losses at Generator end	0.92%	

Note: Generation-Load Summary (MW) for June 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	644.99	301.14	293.73	341.13	7.41
2	Eastern Grid	407.42	85.85	83.29	324.29	2.56
Total		1,052.41	386.99	377.02	665.42	9.97

Note: Generation-Load Summary for June 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	735.33	228.62	219.35	472.84	9.27
2	Eastern Grid	481.88	69.22	66.45	446.53	2.77
Total		1,217.21	297.84	285.80	919.37	12.04

NOTE-BHP 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.