

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	July 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	183.19	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I & II under breakdown.
		Unit- II	186.28	400kV THP - Siliguri Line - II	0.00	
		Unit- III	184.60	400kV THP - Siliguri Line- IV	556.35	
		Unit- IV	183.47	400kV THP - Malbase Line - III	546.16	
		Unit- V	184.71	400kV Malbase - Siliguri Line	548.23	
		Unit- VI	185.90	-	-	
		Total	1,108.15	Auxiliary Consumption & Transformation Losses at Generator end	0.51%	
2	720MW MHP	Unit-I	197.92	400kV MHP - Jigmeling Line - I	293.98	Unit III under shutdown. 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
		Unit-II	197.86	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.76	
		Unit-IV	197.65	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)	29.43	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	138.92	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	206.74	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	207.55	
		-	-	80MVA, 220/132kV ICT - I (HV)	34.01	
		-	-	80MVA, 220/132kV ICT - II (HV)	34.47	
		-	-	220kV Tsirang - Jigmeling Line	74.05	
-	-	132kV Gelephu - Salakati Line	22.77			
Total	593.43	Auxiliary Consumption & Transformation Losses at Generator end	0.62%			
3	336MW CHP	Unit- I	91.88	220kV CHP - Birpara Line- I	76.75	
		Unit- II	91.34	220kV CHP - Birpara Line- II	76.99	
		Unit- III	91.06	220kV CHP - Malbase Line- III	151.36	
		Unit- IV	91.43	220kV CHP - Semtokha Line- IV	39.92	
		-	-	220kV Malbase - Birpara Line	8.03	
		-	-	66kV CHP - Chumdo Line	13.74	
		-	-	66kV CHP - Gedu Line	4.86	
		-	-	3x3MVA, 66/11kV TFR	1.34	
Total	365.71	Auxiliary Consumption & Transformation Losses at Generator end	0.21%			
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	58.52	
		Unit- II	12.10	66kV BHP - Lobeysa Line	25.88	
		Total	24.40	220kV BHP - Tsirang Line	-19.56	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.71	
		Unit- II	21.20	30MVA ICT, 220/66kV (HV)	2.72	
		Total	41.70	Auxiliary Consumption & Transformation Losses at Generator end	0.83%	
6	126MW DHP	Unit-I	49.39	220kV DHP - Tsirang Line	96.93	220kV DHP_Dagapela Line on Standby.
		Unit-II	48.02	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	35.60	
		-	-	5MVA, 220/33kV TFR	0.45	
Total	97.41	Auxiliary Consumption & Transformation Losses at Gen. end	0.03%			
7	60MW KHP	Unit- I	16.00	132kV KHP - Nangkhoh Line	6.42	
		Unit-II	16.48	132kV KHP - Kilikhar Line	57.67	
		Unit- III	16.34	5MVA, 132/11kV TFR	0.38	
		Unit- IV	16.62	132kV Motanga - Rangia Line	36.19	
		Total	65.44	Auxiliary Consumption & Transformation Losses at Generator end	1.48%	

Note: Generation-Load Summary (MW) for July 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	1,637.37	296.97	290.00	1,266.35	6.97
2	Eastern Grid	658.87	120.75	116.09	612.17	4.66
Total		2,296.24	417.72	406.09	1,878.52	11.63

Note: Generation-Load Summary for July 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	1,683.07	286.49	269.69	1,268.70	16.80
2	Eastern Grid	461.34	64.71	64.19	524.51	0.52
Total		2,144.41	351.20	333.88	1,793.21	17.32

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:	July 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	185.01	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I & II under breakdown.
		Unit- II	186.11	400kV THP - Siliguri Line - II	0.00	
		Unit- III	185.47	400kV THP - Siliguri Line- IV	557.26	
		Unit- IV	185.11	400kV THP - Malbase Line - III	547.55	
		Unit- V	186.42	400kV Malbase - Siliguri Line	551.05	
		Unit- VI	185.75	-	-	
		Total	1,113.87	Auxiliary Consumption & Transformation Losses at Generator end	0.81%	
2	720MW MHP	Unit-I	197.73	400kV MHP - Jigmeling Line - I	293.70	Unit III under shutdown. 400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby
		Unit-II	197.79	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.78	
		Unit-IV	197.57	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)	29.81	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	138.34	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	206.47	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	208.10	
		-	-	80MVA, 220/132kV ICT - I (HV)	32.53	
		-	-	80MVA, 220/132kV ICT - II (HV)	33.12	
		-	-	220kV Tsirang - Jigmeling Line	72.76	
-	-	132kV Gelephu - Salakati Line	11.80			
Total	593.09	Auxiliary Consumption & Transformation Losses at Generator end	0.61%			
3	336MW CHP	Unit- I	91.66	220kV CHP - Birpara Line- I	76.94	
		Unit- II	91.17	220kV CHP - Birpara Line- II	76.82	
		Unit- III	92.54	220kV CHP - Malbase Line- III	151.87	
		Unit- IV	90.79	220kV CHP - Semtokha Line- IV	27.15	
		-	-	220kV Malbase - Birpara Line	6.66	
		-	-	66kV CHP - Chumdo Line	11.98	
		-	-	66kV CHP - Gedu Line	5.04	
		-	-	3x3MVA, 66/11kV TFR	0.94	
Total	366.16	Auxiliary Consumption & Transformation Losses at Generator end	4.21%			
4	24MW BHP (U/S)	Unit- I	11.85	220kV BHP - Semtokha Line	51.83	
		Unit- II	11.85	66kV BHP - Lobeyasa Line	24.01	
		Total	23.70	220kV BHP - Tsirang Line	-10.84	
5	40MW BHP (L/S)	Unit- I	20.40	5MVA, 66/11kV TFR	0.43	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	0.60	
		Total	41.50	Auxiliary Consumption & Transformation Losses at Generator end	-0.35%	
6	126MW DHP	Unit-I	42.36	220kV DHP - Tsirang Line	84.88	220kV DHP_Dagapela Line on Standby.
		Unit-II	42.97	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	35.19	
		-	-	5MVA, 220/33kV TFR	0.50	
Total	85.33	Auxiliary Consumption & Transformation Losses at Generator end	-0.06%			
7	60MW KHP	Unit- I	15.89	132kV KHP - Nangkhoh Line	41.36	
		Unit-II	16.49	132kV KHP - Kilikhar Line	22.97	
		Unit- III	16.42	5MVA, 132/11kV TFR	0.38	
		Unit- IV	16.47	132kV Motanga - Rangia Line	29.42	
		Total	65.27	Auxiliary Consumption & Transformation Losses at Generator end	0.86%	

Note: Generation-Load Summary (MW) for July 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	1,630.56	289.07	264.87	1,268.73	24.20
2	Eastern Grid	658.36	136.99	132.82	594.13	4.17
Total		2,288.92	426.06	397.69	1,862.86	28.37

Note: Generation-Load Summary for July 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	1,672.04	271.44	260.86	1,279.59	10.58
2	Eastern Grid	659.13	63.00	59.93	717.14	3.07
Total		2,331.17	334.44	320.79	1,996.73	13.65

NOTE-

- 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.