

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	July 6, 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	185.24	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I & II under breakdown.
		Unit- II	185.51	400kV THP - Siliguri Line - II	0.00	
		Unit- III	78.91	400kV THP - Siliguri Line- IV	422.64	
		Unit- IV	79.14	400kV THP - Malbase Line - III	414.43	
		Unit- V	147.06	400kV Malbase - Siliguri Line	414.45	
		Unit- VI	166.21	-	-	
		Total	842.07	Auxiliary Consumption & Transformation Losses at Generator end	0.59%	
2	720MW MHP	Unit-I	179.82	400kV MHP - Jigmeling Line - I	267.38	Unit III under shutdown. 400kV MHP-JLG line II & 400kV MHP-JLG Line IV on Standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line I (Interim) on standby. 400kV JLG_ALI Line II (Direct) under shutdown.
		Unit-II	179.85	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	268.83	
		Unit-IV	180.28	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)	71.15	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	181.07	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	275.60	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	37.46	
		-	-	80MVA, 220/132kV ICT - II (HV)	38.19	
		-	-	220kV Tsirang - Jigmeling Line	41.82	
-	-	132kV Gelephu - Salakati Line	26.46			
Total	539.95	Auxiliary Consumption & Transformation Losses at Generator end	0.69%			
3	336MW CHP	Unit- I	91.34	220kV CHP - Birpara Line- I	73.90	
		Unit- II	91.02	220kV CHP - Birpara Line- II	73.91	
		Unit- III	91.80	220kV CHP - Malbase Line- III	155.83	
		Unit- IV	91.17	220kV CHP - Semtokha Line- IV	40.66	
		-	-	220kV Malbase - Birpara Line	-0.64	
		-	-	66kV CHP - Chumdo Line	12.64	
		-	-	66kV CHP - Gedu Line	5.72	
		-	-	3x3MVA, 66/11kV TFR	1.32	
Total	365.33	Auxiliary Consumption & Transformation Losses at Generator end	0.37%			
4	24MW BHP (U/S)	Unit- I	20.45	220kV BHP - Semtokha Line	55.97	
		Unit- II	21.03	66kV BHP - Lobeyasa Line	24.62	
		Total	41.48	220kV BHP - Tsirang Line	-18.24	
5	40MW BHP (L/S)	Unit- I	10.68	5MVA, 66/11kV TFR	0.63	
		Unit- II	10.68	30MVA ICT, 220/66kV (HV)	3.96	
		Total	21.36	Auxiliary Consumption & Transformation Losses at Generator end	-0.22%	
6	126MW DHP	Unit-I	31.31	220kV DHP - Tsirang Line	62.83	220kV DHP_Dagapela Line on Standby.
		Unit-II	32.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	35.65	
		-	-	5MVA, 220/33kV TFR	0.45	
Total	63.31	Auxiliary Consumption & Transformation Losses at Gen. end	0.05%			
7	60MW KHP	Unit- I	16.54	132kV KHP - Nangkhoh Line	40.89	
		Unit-II	16.54	132kV KHP - Kilikhar Line	24.31	
		Unit- III	16.56	5MVA, 132/11kV TFR	0.41	
		Unit- IV	16.57	132kV Motanga - Rangia Line	31.53	
		Total	66.21	Auxiliary Consumption & Transformation Losses at Generator end	0.91%	

Note: Generation-Load Summary (MW) for July 06, 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	1,333.55	307.47	301.23	984.26	6.24
2	Eastern Grid	606.16	133.32	128.98	514.66	4.34
Total		1,939.71	440.79	430.21	1,498.92	10.58

Note: Generation-Load Summary for July 06, 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	1,511.61	260.32	253.80	1,164.59	6.52
2	Eastern Grid	659.26	77.93	74.34	668.03	3.59
Total		2,170.87	338.25	328.14	1,832.62	10.11

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 7, 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	185.52	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I & II under breakdown.
		Unit- II	184.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	79.26	400kV THP - Siliguri Line- IV	402.00	
		Unit- IV	80.46	400kV THP - Malbase Line - III	395.07	
		Unit- V	107.84	400kV Malbase - Siliguri Line	397.01	
		Unit- VI	164.54	-	-	
		Total	801.62	Auxiliary Consumption & Transformation Losses at Generator end	0.57%	
2	720MW MHP	Unit-I	175.20	400kV MHP - Jigmeling Line - I	260.78	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 I (Interim) on standby
		Unit-II	175.15	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	261.91	
		Unit-IV	175.60	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)	38.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	117.10	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	180.70	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	181.80	
		-	-	80MVA, 220/132kV ICT - I (HV)	30.20	
		-	-	80MVA, 220/132kV ICT - II (HV)	30.80	
		-	-	220kV Tsirang - Jigmeling Line	54.50	
-	-	132kV Gelephu - Salakati Line	16.50			
Total	525.95	Auxiliary Consumption & Transformation Losses at Generator end	0.62%			
3	336MW CHP	Unit- I	91.73	220kV CHP - Birpara Line- I	75.51	
		Unit- II	91.46	220kV CHP - Birpara Line- II	75.50	
		Unit- III	91.89	220kV CHP - Malbase Line- III	147.03	
		Unit- IV	91.39	220kV CHP - Semtokha Line- IV	49.20	
		-	-	220kV Malbase - Birpara Line	9.29	
		-	-	66kV CHP - Chumdo Line	10.72	
		-	-	66kV CHP - Gedu Line	5.86	
		-	-	3x3MVA, 66/11kV TFR	0.87	
Total	366.47	Auxiliary Consumption & Transformation Losses at Generator end	0.49%			
4	24MW BHP (U/S)	Unit- I	10.36	220kV BHP - Semtokha Line	41.23	
		Unit- II	10.36	66kV BHP - Lobeyasa Line	23.16	
		Total	20.72	220kV BHP - Tsirang Line	-5.77	
5	40MW BHP (L/S)	Unit- I	19.09	5MVA, 66/11kV TFR	0.41	
		Unit- II	18.92	30MVA ICT, 220/66kV (HV)	2.70	
		Total	38.01	Auxiliary Consumption & Transformation Losses at Generator end	-0.51%	
6	126MW DHP	Unit-I	31.34	220kV DHP - Tsirang Line	61.89	220kV DHP_Dagapela Line on Standby.
		Unit-II	30.98	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	31.40	
		-	-	5MVA, 220/33kV TFR	0.40	
Total	62.32	Auxiliary Consumption & Transformation Losses at Generator end	0.05%			
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhoh Line	42.50	
		Unit-II	16.50	132kV KHP - Kilikhar Line	22.70	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.39	
		Unit- IV	16.50	132kV Motanga - Rangia Line	27.90	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Generator end	0.62%	

Note: Generation-Load Summary (MW) for July 07, 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	1,289.14	275.33	269.27	959.31	6.06
2	Eastern Grid	591.95	122.45	118.78	524.00	3.67
Total		1,881.09	397.78	388.05	1,483.31	9.73

Note: Generation-Load Summary for July 07, 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	1,494.16	270.25	261.00	1,120.61	9.25
2	Eastern Grid	659.22	64.61	61.24	697.91	3.37
Total		2,153.38	334.86	322.24	1,818.52	12.62

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.