

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	July 20, 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	186.83	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I under breakdown.
		Unit- II	183.40	400kV THP - Siliguri Line - II	251.98	
		Unit- III	183.98	400kV THP - Siliguri Line - IV	243.08	
		Unit- IV	99.82	400kV THP - Malbase Line - III	311.74	
		Unit- V	78.50	400kV Malbase - Siliguri Line	110.24	
		Unit- VI	79.05	-	-	
		Total	811.58	Auxiliary Consumption & Transformation Losses at Generator end	0.59%	
2	720MW MHP	Unit-I	197.91	400kV MHP - Jigmeling Line - I	294.14	Unit III under shutdown. 400kV MHP-JLG line II & 400kV MHP-JLG Line IV on Standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line I (Interim) on standby.
		Unit-II	197.94	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.88	
		Unit-IV	197.75	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)	55.20	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	130.90	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	197.66	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	195.88	
		-	-	80MVA, 220/132kV ICT - I (HV)	35.34	
		-	-	80MVA, 220/132kV ICT - II (HV)	36.17	
		-	-	220kV Tsirang - Jigmeling Line	29.48	
-	-	132kV Gelephu - Salakati Line	14.75			
Total	593.60	Auxiliary Consumption & Transformation Losses at Generator end	0.60%			
3	336MW CHP	Unit- I	91.74	220kV CHP - Birpara Line- I	67.53	Unit IV under Shutdown.
		Unit- II	91.22	220kV CHP - Birpara Line- II	67.59	
		Unit- III	91.45	220kV CHP - Malbase Line- III	88.46	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	31.75	
		-	-	220kV Malbase - Birpara Line	42.18	
		-	-	66kV CHP - Chumdo Line	13.14	
		-	-	66kV CHP - Gedu Line	4.64	
		-	-	3x3MVA, 66/11kV TFR	1.21	
Total	274.41	Auxiliary Consumption & Transformation Losses at Generator end	0.03%			
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	68.24	
		Unit- II	12.10	66kV BHP - Lobeyssa Line	25.40	
		Total	24.40	220kV BHP - Tsirang Line	-28.30	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.57	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	2.48	
		Total	41.60	Auxiliary Consumption & Transformation Losses at Generator end	0.14%	
6	126MW DHP	Unit-I	46.41	220kV DHP - Tsirang Line	93.95	220kV DHP_Dagapela Line on Standby.
		Unit-II	48.02	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	44.54	
		-	-	5MVA, 220/33kV TFR	0.47	
Total	94.43	Auxiliary Consumption & Transformation Losses at Gen. end	0.01%			
7	60MW KHP	Unit- I	16.47	132kV KHP - Nangkhoh Line	38.79	
		Unit-II	16.55	132kV KHP - Kilikhar Line	26.23	
		Unit- III	16.54	5MVA, 132/11kV TFR	0.57	
		Unit- IV	16.55	132kV Motanga - Rangia Line	31.75	
		Total	66.11	Auxiliary Consumption & Transformation Losses at Generator end	0.79%	

Note: Generation-Load Summary (MW) for July 20, 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	1,246.42	434.34	429.37	782.60	4.97
2	Eastern Grid	659.71	118.25	114.15	570.94	4.10
Total		1,906.13	552.59	543.52	1,353.54	9.07

Note: Generation-Load Summary for July 20, 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	558.28	229.83	226.46	209.77	3.37
2	Eastern Grid	461.97	84.43	81.85	496.22	2.58
Total		1,020.25	314.26	308.31	705.99	5.95

NOTES:

- 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:	July 21, 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	186.57	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I under breakdown.
		Unit- II	183.35	400kV THP - Siliguri Line - II	304.23	
		Unit- III	183.94	400kV THP - Siliguri Line - IV	290.15	
		Unit- IV	138.70	400kV THP - Malbase Line - III	344.77	
		Unit- V	68.64	400kV Malbase - Siliguri Line	276.97	
		Unit- VI	185.60	-	-	
		Total	946.80	Auxiliary Consumption & Transformation Losses at Generator end	0.81%	
2	720MW MHP	Unit-I	197.92	400kV MHP - Jigmeling Line - I	294.25	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	197.87	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	296.11	
		Unit-IV	198.07	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)	18.04	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	138.17	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	210.74	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	212.16	
		-	-	80MVA, 220/132kV ICT - I (HV)	31.65	
		-	-	80MVA, 220/132kV ICT - II (HV)	32.28	
		-	-	220kV Tsirang - Jigmeling Line	91.88	
-	-	132kV Gelephu - Salakati Line	9.89			
Total	593.86	Auxiliary Consumption & Transformation Losses at Generator end	0.59%			
3	336MW CHP	Unit- I	91.74	220kV CHP - Birpara Line- I	70.39	Unit IV under Shutdown.
		Unit- II	91.22	220kV CHP - Birpara Line- II	70.20	
		Unit- III	91.45	220kV CHP - Malbase Line- III	95.55	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	19.13	
		-	-	220kV Malbase - Birpara Line	41.40	
		-	-	66kV CHP - Chumdo Line	10.50	
		-	-	66kV CHP - Gedu Line	5.23	
		-	-	3x3MVA, 66/11kV TFR	0.91	
Total	274.41	Auxiliary Consumption & Transformation Losses at Generator end	0.91%			
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	72.30	
		Unit- II	12.10	66kV BHP - Lobeyasa Line	24.74	
		Total	24.40	220kV BHP - Tsirang Line	-31.50	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.37	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	1.32	
		Total	41.60	Auxiliary Consumption & Transformation Losses at Generator end	0.14%	
6	126MW DHP	Unit-I	63.60	220kV DHP - Tsirang Line	126.22	Unit-I on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	63.17	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	45.53	
		-	-	5MVA, 220/33kV TFR	0.50	
Total	126.77	Auxiliary Consumption & Transformation Losses at Generator end	0.04%			
7	60MW KHP	Unit- I	16.39	132kV KHP - Nangkhoh Line	40.52	
		Unit-II	16.61	132kV KHP - Kilikhar Line	22.64	
		Unit- III	15.17	5MVA, 132/11kV TFR	0.53	
		Unit- IV	15.92	132kV Motanga - Rangia Line	27.46	
		Total	64.09	Auxiliary Consumption & Transformation Losses at Generator end	0.62%	

Note: Generation-Load Summary (MW) for July 21, 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	1,413.98	268.76	258.47	1,053.34	10.29
2	Eastern Grid	657.95	151.41	147.51	598.42	3.90
Total		2,071.93	420.17	405.98	1,651.76	14.19

Note: Generation-Load Summary for July 21, 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	558.44	254.18	252.16	204.85	2.02
2	Eastern Grid	659.07	65.86	62.12	692.62	3.74
Total		1,217.51	320.04	314.28	897.47	5.76

NOTES: BHP Generation 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.
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