

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	July 22, 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	184.73	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I under breakdown.
		Unit- II	185.43	400kV THP - Siliguri Line - II	349.44	
		Unit- III	184.91	400kV THP - Siliguri Line - IV	333.42	
		Unit- IV	185.69	400kV THP - Malbase Line - III	421.88	
		Unit- V	185.78	400kV Malbase - Siliguri Line	312.18	
		Unit- VI	185.36	-	-	
		Total	1,111.90	Auxiliary Consumption & Transformation Losses at Generator end	0.64%	
2	720MW MHP	Unit-I	197.85	400kV MHP - Jigmeling Line - I	293.70	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.
		Unit-II	197.79	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.62	
		Unit-IV	197.70	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)	46.90	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	131.62	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	200.32	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	201.29	
		-	-	80MVA, 220/132kV ICT - I (HV)	38.86	
		-	-	80MVA, 220/132kV ICT - II (HV)	39.69	
		-	-	220kV Tsirang - Jigmeling Line	79.05	
-	-	132kV Gelephu - Salakati Line	11.27			
Total	593.34	Auxiliary Consumption & Transformation Losses at Generator end	0.68%			
3	336MW CHP	Unit- I	91.74	220kV CHP - Birpara Line- I	69.78	Unit IV under Shutdown.
		Unit- II	91.22	220kV CHP - Birpara Line- II	70.12	
		Unit- III	91.45	220kV CHP - Malbase Line- III	87.72	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	26.27	
		-	-	220kV Malbase - Birpara Line	46.57	
		-	-	66kV CHP - Chumdo Line	12.95	
		-	-	66kV CHP - Gedu Line	4.80	
		-	-	3x3MVA, 66/11kV TFR	1.33	
Total	274.41	Auxiliary Consumption & Transformation Losses at Generator end	0.52%			
4	24MW BHP (U/S)	Unit- I	11.87	220kV BHP - Semtokha Line	72.47	
		Unit- II	11.87	66kV BHP - Lobeysa Line	26.13	
		Total	23.74	220kV BHP - Tsirang Line	-33.24	
5	40MW BHP (L/S)	Unit- I	20.52	5MVA, 66/11kV TFR	0.60	
		Unit- II	21.11	30MVA ICT, 220/66kV (HV)	2.90	
		Total	41.63	Auxiliary Consumption & Transformation Losses at Generator end	-0.90%	
6	126MW DHP	Unit-I	58.46	220kV DHP - Tsirang Line	115.90	220kV DHP_Dagapela Line on Standby.
		Unit-II	57.96	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	45.87	
		-	-	5MVA, 220/33kV TFR	0.80	
Total	116.42	Auxiliary Consumption & Transformation Losses at Gen. end	-0.24%			
7	60MW KHP	Unit- I	15.87	132kV KHP - Nangkhon Line	39.50	
		Unit-II	16.18	132kV KHP - Kilikhar Line	25.43	
		Unit- III	16.44	5MVA, 132/11kV TFR	0.30	
		Unit- IV	16.55	132kV Motanga - Rangia Line	31.53	
		Total	65.04	Auxiliary Consumption & Transformation Losses at Generator end	-0.29%	

Note: Generation-Load Summary (MW) for July 22, 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	1,568.10	307.54	299.81	1,181.51	7.73
2	Eastern Grid	658.38	161.40	157.57	576.03	3.83
Total		2,226.48	468.94	457.38	1,757.54	11.56

Note: Generation-Load Summary for July 22, 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	551.13	258.79	260.28	200.09	-1.49
2	Eastern Grid	659.11	62.99	58.97	688.37	4.02
Total		1,210.24	321.78	319.25	888.46	2.53

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 23, 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	185.43	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I under breakdown.
		Unit- II	184.84	400kV THP - Siliguri Line - II	356.79	
		Unit- III	185.77	400kV THP - Siliguri Line - IV	341.49	
		Unit- IV	184.93	400kV THP - Malbase Line - III	408.59	
		Unit- V	185.91	400kV Malbase - Siliguri Line	323.26	
		Unit- VI	185.37	-	-	
		Total	1,112.25	Auxiliary Consumption & Transformation Losses at Generator end	0.48%	
2	720MW MHP	Unit-I	197.87	400kV MHP - Jigmeling Line - I	294.13	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	197.83	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.83	
		Unit-IV	197.66	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)	13.09	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	138.90	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	212.55	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	213.59	
		-	-	80MVA, 220/132kV ICT - I (HV)	32.71	
		-	-	80MVA, 220/132kV ICT - II (HV)	33.35	
		-	-	220kV Tsirang - Jigmeling Line	98.66	
-	-	132kV Gelephu - Salakati Line	7.51			
Total	593.36	Auxiliary Consumption & Transformation Losses at Generator end	0.57%			
3	336MW CHP	Unit- I	91.74	220kV CHP - Birpara Line- I	73.63	Unit IV under Shutdown.
		Unit- II	91.22	220kV CHP - Birpara Line- II	73.79	
		Unit- III	91.45	220kV CHP - Malbase Line- III	96.62	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	13.64	
		-	-	220kV Malbase - Birpara Line	46.84	
		-	-	66kV CHP - Chumdo Line	10.07	
		-	-	66kV CHP - Gedu Line	4.62	
		-	-	3x3MVA, 66/11kV TFR	0.92	
Total	274.41	Auxiliary Consumption & Transformation Losses at Generator end	0.41%			
4	24MW BHP (U/S)	Unit- I	11.85	220kV BHP - Semtokha Line	66.15	
		Unit- II	11.85	66kV BHP - Lobeyasa Line	23.98	
		Total	23.70	220kV BHP - Tsirang Line	-24.77	
5	40MW BHP (L/S)	Unit- I	20.58	5MVA, 66/11kV TFR	0.41	
		Unit- II	21.12	30MVA ICT, 220/66kV (HV)	0.60	
		Total	41.70	Auxiliary Consumption & Transformation Losses at Generator end	-0.57%	
6	126MW DHP	Unit-I	63.62	220kV DHP - Tsirang Line	126.12	220kV DHP_Dagapela Line on Standby.
		Unit-II	63.21	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	45.53	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	126.83	Auxiliary Consumption & Transformation Losses at Generator end	0.40%			
7	60MW KHP	Unit- I	14.11	132kV KHP - Nangkhoh Line	36.75	
		Unit-II	14.44	132kV KHP - Kilikhar Line	21.89	
		Unit- III	15.20	5MVA, 132/11kV TFR	0.53	
		Unit- IV	16.12	132kV Motanga - Rangia Line	24.60	
		Total	59.87	Auxiliary Consumption & Transformation Losses at Generator end	1.17%	

Note: Generation-Load Summary (MW) for July 23, 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	1,578.89	264.43	257.79	1,215.80	6.64
2	Eastern Grid	653.23	154.74	150.64	597.15	4.10
Total		2,232.12	419.17	408.43	1,812.95	10.74

Note: Generation-Load Summary for July 23, 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	577.65	250.59	248.88	232.86	1.71
2	Eastern Grid	659.51	67.78	63.67	685.93	4.11
Total		1,237.16	318.37	312.55	918.79	5.82

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.
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