

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	July 17, 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	147.93	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I under breakdown.
		Unit- II	79.13	400kV THP - Siliguri Line - II	230.00	
		Unit- III	139.13	400kV THP - Siliguri Line - IV	220.45	
		Unit- IV	137.86	400kV THP - Malbase Line - III	296.59	
		Unit- V	78.48	400kV Malbase - Siliguri Line	198.24	
		Unit- VI	169.66	-	-	
		Total	752.19	Auxiliary Consumption & Transformation Losses at Generator end	0.68%	
2	720MW MHP	Unit-I	155.26	400kV MHP - Jigmeling Line - I	230.62	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	154.90	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	231.83	
		Unit-IV	155.25	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)	90.38	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	88.72	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	137.13	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	138.20	
		-	-	80MVA, 220/132kV ICT - I (HV)	33.55	
		-	-	80MVA, 220/132kV ICT - II (HV)	34.49	
		-	-	220kV Tsirang - Jigmeling Line	22.94	
-	-	132kV Gelephu - Salakati Line	4.87			
Total	465.41	Auxiliary Consumption & Transformation Losses at Generator end	0.64%			
3	336MW CHP	Unit- I	91.74	220kV CHP - Birpara Line- I	55.97	Unit IV under Shutdown.
		Unit- II	91.22	220kV CHP - Birpara Line- II	56.11	
		Unit- III	91.45	220kV CHP - Malbase Line- III	83.94	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	57.07	
		-	-	220kV Malbase - Birpara Line	24.32	
		-	-	66kV CHP - Chumdo Line	13.74	
		-	-	66kV CHP - Gedu Line	4.02	
		-	-	3x3MVA, 66/11kV TFR	1.34	
Total	274.41	Auxiliary Consumption & Transformation Losses at Generator end	0.81%			
4	24MW BHP (U/S)	Unit- I	7.17	220kV BHP - Semtokha Line	39.89	
		Unit- II	7.17	66kV BHP - Lobeyasa Line	21.30	
		Total	14.34	220kV BHP - Tsirang Line	-18.88	
5	40MW BHP (L/S)	Unit- I	14.24	5MVA, 66/11kV TFR	0.58	
		Unit- II	14.15	30MVA ICT, 220/66kV (HV)	7.50	
		Total	28.39	Auxiliary Consumption & Transformation Losses at Generator end	-0.37%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	48.64	DHP unit I on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	48.98	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	44.76	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	48.98	Auxiliary Consumption & Transformation Losses at Gen. end	0.29%			
7	60MW KHP	Unit- I	15.94	132kV KHP - Nangkhoh Line	40.44	
		Unit-II	16.27	132kV KHP - Kilikhar Line	23.89	
		Unit- III	16.59	5MVA, 132/11kV TFR	0.43	
		Unit- IV	16.50	132kV Motanga - Rangia Line	24.34	
		Total	65.30	Auxiliary Consumption & Transformation Losses at Generator end	0.83%	

Note: Generation-Load Summary (MW) for July 17, 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	1,118.31	310.28	302.93	785.09	7.35
2	Eastern Grid	530.71	160.39	156.89	393.26	3.50
Total		1,649.02	470.67	459.82	1,178.35	10.85

Note: Generation-Load Summary for July 17, 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	1,660.65	256.06	250.08	1,291.82	5.98
2	Eastern Grid	659.34	77.78	73.21	694.33	4.57
Total		2,319.99	333.84	323.29	1,986.15	10.55

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 18, 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	146.72	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I under breakdown.
		Unit- II	79.05	400kV THP - Siliguri Line - II	263.03	
		Unit- III	168.61	400kV THP - Siliguri Line - IV	252.67	
		Unit- IV	138.17	400kV THP - Malbase Line - III	319.10	
		Unit- V	137.51	400kV Malbase - Siliguri Line	236.36	
		Unit- VI	168.96	-	-	
		Total	839.02	Auxiliary Consumption & Transformation Losses at Generator end	0.50%	
2	720MW MHP	Unit-I	159.77	400kV MHP - Jigmeling Line - I	233.01	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	154.86	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	234.24	
		Unit-IV	155.20	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)	75.58	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	94.54	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	142.13	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	143.28	
		-	-	80MVA, 220/132kV ICT - I (HV)	29.53	
		-	-	80MVA, 220/132kV ICT - II (HV)	30.31	
		-	-	220kV Tsirang - Jigmeling Line	29.12	
-	-	132kV Gelephu - Salakati Line	5.25			
Total	469.83	Auxiliary Consumption & Transformation Losses at Generator end	0.55%			
3	336MW CHP	Unit- I	91.74	220kV CHP - Birpara Line- I	58.11	Unit IV under Shutdown.
		Unit- II	91.22	220kV CHP - Birpara Line- II	58.29	
		Unit- III	91.45	220kV CHP - Malbase Line- III	83.92	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	55.55	
		-	-	220kV Malbase - Birpara Line	31.68	
		-	-	66kV CHP - Chumdo Line	11.97	
		-	-	66kV CHP - Gedu Line	3.72	
		-	-	3x3MVA, 66/11kV TFR	0.73	
Total	274.41	Auxiliary Consumption & Transformation Losses at Generator end	0.77%			
4	24MW BHP (U/S)	Unit- I	7.60	220kV BHP - Semtokha Line	35.30	
		Unit- II	7.10	66kV BHP - Lobeyasa Line	20.74	
		Total	14.70	220kV BHP - Tsirang Line	-13.31	
5	40MW BHP (L/S)	Unit- I	14.30	5MVA, 66/11kV TFR	0.38	
		Unit- II	14.20	30MVA ICT, 220/66kV (HV)	6.57	
		Total	28.50	Auxiliary Consumption & Transformation Losses at Generator end	0.21%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	48.64	Unit-I on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	48.98	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	45.68	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	48.98	Auxiliary Consumption & Transformation Losses at Generator end	0.29%			
7	60MW KHP	Unit- I	15.65	132kV KHP - Nangkhoh Line	41.44	
		Unit-II	16.05	132kV KHP - Kilikhar Line	22.30	
		Unit- III	16.64	5MVA, 132/11kV TFR	0.30	
		Unit- IV	16.55	132kV Motanga - Rangia Line	24.99	
		Total	64.89	Auxiliary Consumption & Transformation Losses at Generator end	1.31%	

Note: Generation-Load Summary (MW) for July 18, 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	1,205.61	276.35	269.78	900.14	6.57
2	Eastern Grid	534.72	153.65	150.22	410.19	3.43
Total		1,740.33	430.00	420.00	1,310.33	10.00

Note: Generation-Load Summary for July 18, 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	1,655.47	263.47	257.84	1,281.30	5.63
2	Eastern Grid	659.57	64.33	60.86	705.94	3.47
Total		2,315.04	327.80	318.70	1,987.24	9.10

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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