

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	July 15, 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	186.03	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I under breakdown.
		Unit- II	69.36	400kV THP - Siliguri Line - II	229.59	
		Unit- III	168.44	400kV THP - Siliguri Line - IV	218.61	
		Unit- IV	79.21	400kV THP - Malbase Line - III	306.09	
		Unit- V	184.71	400kV Malbase - Siliguri Line	200.95	
		Unit- VI	70.02	-	-	
		Total	757.77	Auxiliary Consumption & Transformation Losses at Generator end	0.46%	
2	720MW MHP	Unit-I	155.24	400kV MHP - Jigmeling Line - I	230.98	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	155.17	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	232.45	
		Unit-IV	155.54	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)	67.62	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	92.26	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	145.89	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	146.82	
		-	-	80MVA, 220/132kV ICT - I (HV)	32.63	
		-	-	80MVA, 220/132kV ICT - II (HV)	33.26	
		-	-	220kV Tsirang - Jigmeling Line	38.18	
-	-	132kV Gelephu - Salakati Line	5.76			
Total	465.95	Auxiliary Consumption & Transformation Losses at Generator end	0.54%			
3	336MW CHP	Unit- I	91.74	220kV CHP - Birpara Line- I	60.42	Unit IV under Shutdown.
		Unit- II	91.22	220kV CHP - Birpara Line- II	60.67	
		Unit- III	91.45	220kV CHP - Malbase Line- III	68.14	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	63.40	
		-	-	220kV Malbase - Birpara Line	47.15	
		-	-	66kV CHP - Chumdo Line	13.80	
		-	-	66kV CHP - Gedu Line	3.92	
		-	-	3x3MVA, 66/11kV TFR	1.03	
Total	274.41	Auxiliary Consumption & Transformation Losses at Generator end	1.10%			
4	24MW BHP (U/S)	Unit- I	7.53	220kV BHP - Semtokha Line	31.20	
		Unit- II	7.53	66kV BHP - Lobeyasa Line	21.18	
		Total	15.06	220kV BHP - Tsirang Line	-8.09	
5	40MW BHP (L/S)	Unit- I	14.87	5MVA, 66/11kV TFR	0.56	
		Unit- II	14.75	30MVA ICT, 220/66kV (HV)	6.90	
		Total	29.62	Auxiliary Consumption & Transformation Losses at Generator end	-0.38%	
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	38.16	
		-	-	5MVA, 220/33kV TFR	0.30	
Total	48.98	Auxiliary Consumption & Transformation Losses at Gen. end	0.08%			
7	60MW KHP	Unit- I	16.37	132kV KHP - Nangkhoh Line	40.66	
		Unit-II	16.64	132kV KHP - Kilikhar Line	24.34	
		Unit- III	16.60	5MVA, 132/11kV TFR	0.70	
		Unit- IV	16.57	132kV Motanga - Rangia Line	35.80	
		Total	66.18	Auxiliary Consumption & Transformation Losses at Generator end	0.73%	

Note: Generation-Load Summary (MW) for July 15, 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	1,125.84	270.27	263.89	817.39	6.38
2	Eastern Grid	532.13	143.78	140.78	426.53	3.00
Total		1,657.97	414.05	404.67	1,243.92	9.38

Note: Generation-Load Summary for July 15, 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	1,487.30	220.13	212.71	1,124.33	7.42
2	Eastern Grid	658.55	81.04	76.83	720.35	4.21
Total		2,145.85	301.17	289.54	1,844.68	11.63

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 16, 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	186.08	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I under breakdown.
		Unit- II	68.91	400kV THP - Siliguri Line - II	232.95	
		Unit- III	169.35	400kV THP - Siliguri Line - IV	222.91	
		Unit- IV	79.56	400kV THP - Malbase Line - III	299.11	
		Unit- V	185.56	400kV Malbase - Siliguri Line	204.71	
		Unit- VI	70.22	-	-	
		Total	759.68	Auxiliary Consumption & Transformation Losses at Generator end	0.62%	
2	720MW MHP	Unit-I	159.77	400kV MHP - Jigmeling Line - I	237.83	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	159.76	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	239.24	
		Unit-IV	160.22	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)	63.47	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	99.63	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	153.57	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	152.60	
		-	-	80MVA, 220/132kV ICT - I (HV)	27.81	
		-	-	80MVA, 220/132kV ICT - II (HV)	28.31	
		-	-	220kV Tsirang - Jigmeling Line	38.52	
-	-	132kV Gelephu - Salakati Line	4.36			
Total	479.75	Auxiliary Consumption & Transformation Losses at Generator end	0.56%			
3	336MW CHP	Unit- I	91.74	220kV CHP - Birpara Line- I	58.35	Unit IV under Shutdown.
		Unit- II	91.22	220kV CHP - Birpara Line- II	58.44	
		Unit- III	91.45	220kV CHP - Malbase Line- III	76.26	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	62.63	
		-	-	220kV Malbase - Birpara Line	36.48	
		-	-	66kV CHP - Chumdo Line	12.19	
		-	-	66kV CHP - Gedu Line	4.10	
		-	-	3x3MVA, 66/11kV TFR	0.87	
Total	274.41	Auxiliary Consumption & Transformation Losses at Generator end	0.57%			
4	24MW BHP (U/S)	Unit- I	7.90	220kV BHP - Semtokha Line	29.64	
		Unit- II	7.40	66kV BHP - Lobeyasa Line	20.86	
		Total	15.30	220kV BHP - Tsirang Line	-6.46	
5	40MW BHP (L/S)	Unit- I	14.80	5MVA, 66/11kV TFR	0.44	
		Unit- II	14.70	30MVA ICT, 220/66kV (HV)	-2.08	
		Total	29.50	Auxiliary Consumption & Transformation Losses at Generator end	0.71%	
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	45.33	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	48.98	Auxiliary Consumption & Transformation Losses at Generator end	0.29%			
7	60MW KHP	Unit- I	16.24	132kV KHP - Nangkhoh Line	42.50	
		Unit-II	16.62	132kV KHP - Kilikhar Line	22.56	
		Unit- III	16.62	5MVA, 132/11kV TFR	0.58	
		Unit- IV	16.62	132kV Motanga - Rangia Line	33.62	
		Total	66.10	Auxiliary Consumption & Transformation Losses at Generator end	0.70%	

Note: Generation-Load Summary (MW) for July 16, 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	1,127.87	275.51	268.77	813.84	6.74
2	Eastern Grid	545.85	140.59	137.45	443.78	3.14
Total		1,673.72	416.10	406.22	1,257.62	9.88

Note: Generation-Load Summary for July 16, 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	1,662.09	251.85	241.72	1,274.72	10.13
2	Eastern Grid	658.71	75.38	71.51	718.85	3.87
Total		2,320.80	327.23	313.23	1,993.57	14.00

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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