

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	July 19, 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	146.65	400kV THP - Siliguri Line - I	0.00	400kV THP-Siliguri line I under breakdown.
		Unit- II	77.77	400kV THP - Siliguri Line - II	227.96	
		Unit- III	118.74	400kV THP - Siliguri Line - IV	217.75	
		Unit- IV	89.63	400kV THP - Malbase Line - III	291.48	
		Unit- V	137.33	400kV Malbase - Siliguri Line	198.24	
		Unit- VI	168.51	-	-	
		Total	738.63	Auxiliary Consumption & Transformation Losses at Generator end	0.19%	
2	720MW MHP	Unit-I	180.21	400kV MHP - Jigmeling Line - I	267.93	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	180.09	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	269.71	
		Unit-IV	180.59	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)	90.01	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	109.08	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	166.03	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	165.23	
		-	-	80MVA, 220/132kV ICT - I (HV)	34.46	
		-	-	80MVA, 220/132kV ICT - II (HV)	35.13	
		-	-	220kV Tsirang - Jigmeling Line	25.89	
-	-	132kV Gelephu - Salakati Line	5.95			
Total	540.89	Auxiliary Consumption & Transformation Losses at Generator end	0.60%			
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	58.17	
		Unit- III	91.45	220kV CHP - Malbase Line- III	86.81	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	50.06	
		-	-	220kV Malbase - Birpara Line	28.72	
		-	-	66kV CHP - Chumdo Line	13.37	
		-	-	66kV CHP - Gedu Line	5.03	
		-	-	3x3MVA, 66/11kV TFR	1.37	
Total	274.41	Auxiliary Consumption & Transformation Losses at Generator end	0.54%			
4	24MW BHP (U/S)	Unit- I	8.40	220kV BHP - Semtokha Line	49.79	
		Unit- II	7.90	66kV BHP - Lobeyasa Line	23.18	
		Total	16.30	220kV BHP - Tsirang Line	-27.21	
5	40MW BHP (L/S)	Unit- I	15.10	5MVA, 66/11kV TFR	0.56	
		Unit- II	15.30	30MVA ICT, 220/66kV (HV)	8.10	
		Total	30.40	Auxiliary Consumption & Transformation Losses at Generator end	0.81%	
6	126MW DHP	Unit-I	0.00	220kV DHP - Tsirang Line	55.71	DHP unit I on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	56.02	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	45.99	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	56.02	Auxiliary Consumption & Transformation Losses at Gen. end	0.20%			
7	60MW KHP	Unit- I	16.52	132kV KHP - Nangkhoh Line	39.90	
		Unit-II	16.49	132kV KHP - Kilikhar Line	25.10	
		Unit- III	16.60	5MVA, 132/11kV TFR	0.40	
		Unit- IV	16.50	132kV Motanga - Rangia Line	26.70	
		Total	66.11	Auxiliary Consumption & Transformation Losses at Generator end	1.07%	

Note: Generation-Load Summary (MW) for July 19, 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	1,115.76	300.92	297.50	788.95	3.42
2	Eastern Grid	607.00	159.90	155.94	472.99	3.96
Total		1,722.76	460.82	453.44	1,261.94	7.38

Note: Generation-Load Summary for July 19, 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	265.74	259.98	186.96	5.76
2	Eastern Grid	659.60	73.30	69.45	691.88	3.85
Total		1,217.88	339.04	329.43	878.84	9.61

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.
 - 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 20, 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	186.17	400kV THP - Siliguri Line - I	0.00	Unit-III, 400kV THP-Siliguri line IV and 400kV Malbase_Siliguri III line tripped.
		Unit- II	117.22	400kV THP - Siliguri Line - II	541.76	
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00	
		Unit- IV	98.53	400kV THP - Malbase Line - III	161.45	
		Unit- V	138.02	400kV Malbase - Siliguri Line	0.00	
		Unit- VI	169.07	-	-	
		Total	709.01	Auxiliary Consumption & Transformation Losses at Generator end	0.82%	
2	720MW MHP	Unit-I	179.83	400kV MHP - Jigmeling Line - I	265.17	Unit III under shutdown. 400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line I (Interim) on standby
		Unit-II	175.21	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	266.92	
		Unit-IV	180.34	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)	52.21	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	117.81	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	175.91	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	177.46	
		-	-	80MVA, 220/132kV ICT - I (HV)	29.92	
		-	-	80MVA, 220/132kV ICT - II (HV)	30.49	
		-	-	220kV Tsirang - Jigmeling Line	29.48	
-	-	132kV Gelephu - Salakati Line	7.36			
Total	535.38	Auxiliary Consumption & Transformation Losses at Generator end	0.61%			
3	336MW CHP	Unit- I	91.74	220kV CHP - Birpara Line- I	70.91	Unit IV under Shutdown.
		Unit- II	91.22	220kV CHP - Birpara Line- II	70.81	
		Unit- III	91.45	220kV CHP - Malbase Line- III	60.56	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	52.97	
		-	-	220kV Malbase - Birpara Line	69.87	
		-	-	66kV CHP - Chumdo Line	11.82	
		-	-	66kV CHP - Gedu Line	3.69	
		-	-	3x3MVA, 66/11kV TFR	1.03	
Total	274.41	Auxiliary Consumption & Transformation Losses at Generator end	0.95%			
4	24MW BHP (U/S)	Unit- I	8.90	220kV BHP - Semtokha Line	37.97	
		Unit- II	8.40	66kV BHP - Lobeyasa Line	21.91	
		Total	17.30	220kV BHP - Tsirang Line	-11.80	
5	40MW BHP (L/S)	Unit- I	15.80	5MVA, 66/11kV TFR	0.39	
		Unit- II	16.10	30MVA ICT, 220/66kV (HV)	5.55	
		Total	31.90	Auxiliary Consumption & Transformation Losses at Generator end	1.48%	
6	126MW DHP	Unit-I	34.16	220kV DHP - Tsirang Line	69.00	Unit-I on standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	35.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	44.61	
		-	-	5MVA, 220/33kV TFR	0.15	
Total	69.16	Auxiliary Consumption & Transformation Losses at Generator end	0.01%			
7	60MW KHP	Unit- I	16.56	132kV KHP - Nangkhoh Line	41.28	
		Unit-II	16.50	132kV KHP - Kilikhar Line	23.77	
		Unit- III	16.49	5MVA, 132/11kV TFR	0.50	
		Unit- IV	16.48	132kV Motanga - Rangia Line	31.58	
		Total	66.03	Auxiliary Consumption & Transformation Losses at Generator end	0.73%	

Note: Generation-Load Summary (MW) for July 20, 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	1,101.78	318.95	309.79	753.35	9.16
2	Eastern Grid	601.41	120.77	117.00	510.12	3.77
Total		1,703.19	439.72	426.79	1,263.47	12.93

Note: Generation-Load Summary for July 20, 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	558.85	225.80	227.04	227.96	-1.24
2	Eastern Grid	659.18	67.24	63.14	697.03	4.10
Total		1,218.03	293.04	290.18	924.99	2.86

NOTES: BHP Generation data collected from site.

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 - 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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