

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date:	June 8, 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	118.03	400kV THP - Siliguri Line - I	0.00	Unit-II on standby. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00	
		Unit- III	118.65	400kV THP - Siliguri Line- IV	293.64	
		Unit- IV	137.91	400kV THP - Malbase Line - III	362.91	
		Unit- V	137.98	400kV Malbase - Siliguri Line	276.51	
		Unit- VI	149.52	-	-	
		Total	662.09	Auxiliary Consumption & Transformation Losses at Generator end	0.84%	
2	720MW MHP	Unit-I	159.87	400kV MHP - Jigmeling Line - I	308.00	400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby.
		Unit-II	159.81	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	150.94	400kV MHP - Jigmeling Line - III	309.85	
		Unit-IV	150.50	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)	54.55	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	221.46	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	332.25	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	42.47	
		-	-	80MVA, 220/132kV ICT - II (HV)	43.26	
		-	-	220kV Tsirang - Jigmeling Line	61.98	
-	-	132kV Gelephu - Salakati Line	23.94			
Total	621.12	Auxiliary Consumption & Transformation Losses at Generator end	0.53%			
3	336MW CHP	Unit- I	78.71	220kV CHP - Birpara Line- I	85.09	
		Unit- II	83.20	220kV CHP - Birpara Line- II	85.09	
		Unit- III	84.46	220kV CHP - Malbase Line- III	115.99	
		Unit- IV	76.91	220kV CHP - Semtokha Line- IV	17.38	
		-	-	220kV Malbase - Birpara Line	50.24	
		-	-	66kV CHP - Chumdo Line	12.71	
		-	-	66kV CHP - Gedu Line	5.36	
		-	-	3x3MVA, 66/11kV TFR	1.27	
Total	323.28	Auxiliary Consumption & Transformation Losses at Generator end	0.12%			
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	84.00	
		Unit- II	12.10	66kV BHP - Lobeyasa Line	27.22	
		Total	24.40	220kV BHP - Tsirang Line	-46.16	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.78	
		Unit- II	21.30	30MVA ICT, 220/66kV (HV)	4.13	
		Total	41.80	Auxiliary Consumption & Transformation Losses at Generator end	0.54%	
6	126MW DHP	Unit-I	57.33	220kV DHP - Tsirang Line	111.69	220kV DHP_Dagapela Line on Standby.
		Unit-II	54.91	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	29.40	
		-	-	5MVA, 220/33kV TFR	0.54	
Total	112.24	Auxiliary Consumption & Transformation Losses at Gen. end	0.01%			
7	60MW KHP	Unit- I	15.86	132kV KHP - Nangkhoh Line	40.75	
		Unit-II	16.26	132kV KHP - Kilikhar Line	23.33	
		Unit- III	16.57	5MVA, 132/11kV TFR	0.57	
		Unit- IV	16.65	132kV Motanga - Rangia Line	49.62	
		Total	65.34	Auxiliary Consumption & Transformation Losses at Generator end	1.06%	

Note: Generation-Load Summary (MW) for June 08, 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	1,163.81	311.26	304.96	790.57	6.30
2	Eastern Grid	686.46	121.17	117.21	627.27	3.96
Total		1,850.27	432.43	422.17	1,417.84	10.26

Note: Generation-Load Summary for June 08, 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	1,322.01	247.89	224.29	1,015.37	23.60
2	Eastern Grid	635.88	83.07	79.63	611.56	3.44
Total		1,957.89	330.96	303.92	1,626.93	27.04

NOTE- BHP 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:	June 9, 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	156.57	400kV THP - Siliguri Line - I	0.00	Unit-V under breakdown. 400kV THP-Siliguri line I & II under breakdown.
		Unit- II	157.25	400kV THP - Siliguri Line - II	0.00	
		Unit- III	157.91	400kV THP - Siliguri Line- IV	347.99	
		Unit- IV	128.36	400kV THP - Malbase Line - III	392.50	
		Unit- V	0.00	400kV Malbase - Siliguri Line	341.06	
		Unit- VI	149.26	-	-	
		Total	749.35	Auxiliary Consumption & Transformation Losses at Generator end	1.18%	
2	720MW MHP	Unit-I	175.24	400kV MHP - Jigmeling Line - I	340.94	400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on standby. 400kV JLG_ALI Line II (Direct) on standby.
		Unit-II	170.23	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	171.22	400kV MHP - Jigmeling Line - III	343.06	
		Unit-IV	170.57	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)	53.59	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	249.47	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	372.13	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	29.70	
		-	-	80MVA, 220/132kV ICT - II (HV)	30.26	
		-	-	220kV Tsirang - Jigmeling Line	36.41	
-	-	132kV Gelephu - Salakati Line	22.47			
Total	687.26	Auxiliary Consumption & Transformation Losses at Generator end	0.47%			
3	336MW CHP	Unit- I	92.06	220kV CHP - Birpara Line- I	93.69	
		Unit- II	89.38	220kV CHP - Birpara Line- II	93.44	
		Unit- III	91.17	220kV CHP - Malbase Line- III	133.34	
		Unit- IV	91.85	220kV CHP - Semtokha Line- IV	25.89	
		-	-	220kV Malbase - Birpara Line	49.08	
		-	-	66kV CHP - Chumdo Line	10.98	
		-	-	66kV CHP - Gedu Line	5.28	
		-	-	3x3MVA, 66/11kV TFR	1.02	
Total	364.46	Auxiliary Consumption & Transformation Losses at Generator end	0.22%			
4	24MW BHP (U/S)	Unit- I	11.84	220kV BHP - Semtokha Line	67.31	
		Unit- II	11.84	66kV BHP - Lobeyssa Line	25.00	
		Total	23.68	220kV BHP - Tsirang Line	-26.95	
5	40MW BHP (L/S)	Unit- I	20.46	5MVA, 66/11kV TFR	0.38	
		Unit- II	21.07	30MVA ICT, 220/66kV (HV)	1.47	
		Total	41.53	Auxiliary Consumption & Transformation Losses at Generator end	-0.81%	
6	126MW DHP	Unit-I	33.26	220kV DHP - Tsirang Line	66.78	220kV DHP_Dagapela Line on Standby.
		Unit-II	33.94	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	29.17	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	67.20	Auxiliary Consumption & Transformation Losses at Generator end	0.33%			
7	60MW KHP	Unit- I	16.45	132kV KHP - Nangkhoh Line	43.64	
		Unit-II	16.54	132kV KHP - Kilikhar Line	21.22	
		Unit- III	16.63	5MVA, 132/11kV TFR	0.45	
		Unit- IV	16.45	132kV Motanga - Rangia Line	40.98	
		Total	66.07	Auxiliary Consumption & Transformation Losses at Generator end	1.15%	

Note: Generation-Load Summary (MW) for June 09, 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	1,246.22	284.55	275.18	925.26	9.37
2	Eastern Grid	753.33	104.69	100.67	685.05	4.02
Total		1,999.55	389.24	375.85	1,610.31	13.39

Note: Generation-Load Summary for June 09, 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	992.28	235.52	228.11	711.69	7.41
2	Eastern Grid	658.45	68.14	64.03	635.38	4.11
Total		1,650.73	303.66	292.14	1,347.07	11.52

NOTE-

- 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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