

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: October 20, 2022
Hours: 19:00 Hours

Date: 30-Aug-22
Time: 19:23 hrs
Load(MW): 536.69

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	166.45	400kV THP - Siliguri Line - I	144.17	THP Unit IV on Standby.
		Unit- II	166.97	400kV THP - Siliguri Line - II	143.02	
		Unit- III	108.97	400kV THP - Siliguri Line - IV	138.36	
		Unit- IV	0.00	400kV THP - Malbase Line - III	211.24	
		Unit- V	98.03	400kV Malbase - Siliguri Line	123.30	
		Unit- VI	98.77	-	-	
		Total	639.19	Auxiliary Consumption & Transformation Losses at Generator end	0.38%	
2	720MW MHP	Unit-I	100.18	400kV MHP - Jigmeling Line - I	128.11	MHP unit-II on Standby. 400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmo line I not in service. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	110.69	400kV MHP - Jigmeling Line - III	128.96	
		Unit-IV	120.48	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	72.14	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	28.90	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	55.96	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	83.72	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	84.70	
		-	-	80MVA, 220/132kV ICT - I (HV)	16.70	
		-	-	80MVA, 220/132kV ICT - II (HV)	17.00	
		-	-	220kV Tsirang - Jigmeling Line	-26.31	
-	-	132kV Gelephu - Salakati Line	14.22			
Total	331.35	Auxiliary Consumption & Transformation Losses at Generator end	0.65%			
3	336MW CHP	Unit- I	82.64	220kV CHP - Birpara Line- I	51.66	66kV CHP-Chumdo Line under Shutdown.
		Unit- II	85.03	220kV CHP - Birpara Line- II	51.56	
		Unit- III	84.53	220kV CHP - Malbase Line- III	91.62	
		Unit- IV	61.47	220kV CHP - Semtokha Line- IV	105.43	
		-	-	220kV Malbase - Birpara Line	14.53	
		-	-	66kV CHP - Chumdo Line	0.00	
		-	-	66kV CHP - Gedu Line	12.65	
		-	-	3x3MVA, 66/11kV TFR	1.70	
Total	313.67	Auxiliary Consumption & Transformation Losses at Generator end	-0.30%			
4	24MW BHP (U/S)	Unit- I	9.30	220kV BHP - Semtokha Line	45.64	
		Unit- II	9.00	66kV BHP - Lobeysa Line	28.95	
		Total	18.30	220kV BHP - Tsirang Line	-24.08	
5	40MW BHP (L/S)	Unit- I	16.50	5MVA, 66/11kV TFR	0.58	
		Unit- II	16.60	30MVA ICT, 220/66kV (HV)	11.80	
		Total	33.10	Auxiliary Consumption & Transformation Losses at Generator end	0.60%	
6	126MW DHP	Unit-I	30.26	220kV DHP - Tsirang Line	0.00	220kV DHP_Tsirang Line on Standby.
		Unit-II	31.99	220kV DHP - Dagapela Line	61.87	
		-	-	220kV Jigmeling - Dagapela Line	-30.00	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	62.25	Auxiliary Consumption & Transformation Losses at Gen. end	0.29%			
7	60MW KHP	Unit- I	14.29	132kV KHP - Nangkhor Line	31.15	
		Unit-II	14.28	132kV KHP - Kilikhar Line	24.75	
		Unit- III	14.24	5MVA, 132/11kV TFR	0.60	
		Unit- IV	14.31	132kV Motanga - Rangia Line	37.84	
		Total	57.12	Auxiliary Consumption & Transformation Losses at Generator end	1.09%	

Note: Generation-Load Summary (MW) for October 20, 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	1,066.51	396.22	394.28	666.60	1.94
2	Eastern Grid	388.47	115.72	112.96	276.44	2.76
Total		1,454.98	511.94	507.24	943.04	4.70

Note: Generation-Load Summary for October 20, 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	1,672.03	302.39	295.05	1,270.39	7.34
2	Eastern Grid	727.87	85.53	81.04	741.59	4.49
Total		2,399.90	387.92	376.09	2,011.98	11.83

NOTE-MAT 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:	October 21, 2022
Hours:	09:00 Hours

Date	Time	Load(MW)
30-Aug-22	19:23 hrs	536.69

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	168.68	400kV THP - Siliguri Line - I	145.18	Unit-IV on standby.
		Unit- II	168.15	400kV THP - Siliguri Line - II	143.66	
		Unit- III	107.92	400kV THP - Siliguri Line - IV	138.82	
		Unit- IV	0.00	400kV THP - Malbase Line - III	211.66	
		Unit- V	99.04	400kV Malbase - Siliguri Line	124.72	
		Unit- VI	99.73	-	-	
		Total	643.52	Auxiliary Consumption & Transformation Losses at Generator end	0.65%	
2	720MW MHP	Unit-I	109.82	400kV MHP - Jigmeling Line - I	133.50	MHP Unit- IV under shutdown. 400kV MHP-JLG Line II & IV on Standby. 132kV MHP_Yurmo line I not in service. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	109.97	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	110.71	400kV MHP - Jigmeling Line - III	134.30	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	60.70	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	15.90	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	62.87	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	94.89	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	91.83	
		-	-	80MVA, 220/132kV ICT - I (HV)	13.50	
		-	-	80MVA, 220/132kV ICT - II (HV)	13.80	
		-	-	220kV Tsirang - Jigmeling Line	-18.52	
-	-	132kV Gelephu - Salakati Line	14.00			
Total	330.50	Auxiliary Consumption & Transformation Losses at Generator end	0.61%			
3	336MW CHP	Unit- I	77.13	220kV CHP - Birpara Line- I	41.97	66kV CHP-Chumdo Line under Shutdown.
		Unit- II	85.79	220kV CHP - Birpara Line- II	41.99	
		Unit- III	89.98	220kV CHP - Malbase Line- III	91.93	
		Unit- IV	21.97	220kV CHP - Semtokha Line- IV	84.24	
		-	-	220kV Malbase - Birpara Line	-2.38	
		-	-	66kV CHP - Chumdo Line	0.00	
		-	-	66kV CHP - Gedu Line	11.33	
		-	-	3x3MVA, 66/11kV TFR	1.00	
Total	274.87	Auxiliary Consumption & Transformation Losses at Generator end	0.88%			
4	24MW BHP (U/S)	Unit- I	9.30	220kV BHP - Semtokha Line	42.20	
		Unit- II	9.00	66kV BHP - Lobeysa Line	25.40	
		Total	18.30	220kV BHP - Tsirang Line	-17.40	
5	40MW BHP (L/S)	Unit- I	16.10	5MVA, 66/11kV TFR	0.30	
		Unit- II	16.40	30MVA ICT, 220/66kV (HV)	7.90	
		Total	32.50	Auxiliary Consumption & Transformation Losses at Generator end	0.59%	
6	126MW DHP	Unit-I	31.31	220kV DHP - Tsirang Line	0.00	220kV DHP_TSI Line on Standby.
		Unit-II	29.98	220kV DHP - Dagapela Line	60.89	
		-	-	220kV Jigmeling - Dagapela Line	-30.10	
		-	-	5MVA, 220/33kV TFR	0.39	
Total	61.29	Auxiliary Consumption & Transformation Losses at Generator end	0.02%			
7	60MW KHP	Unit- I	15.05	132kV KHP - Nangkhoh Line	37.95	
		Unit-II	15.05	132kV KHP - Kilikhar Line	21.37	
		Unit- III	15.09	5MVA, 132/11kV TFR	0.50	
		Unit- IV	15.18	132kV Motanga - Rangia Line	33.20	
		Total	60.37	Auxiliary Consumption & Transformation Losses at Generator end	0.91%	

Note: Generation-Load Summary (MW) for October 21, 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	1,030.48	384.94	378.02	633.96	6.92
2	Eastern Grid	390.87	105.66	103.11	296.79	2.55
Total		1,421.35	490.60	481.13	930.75	9.47

Note: Generation-Load Summary for October 21, 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	1,676.00	273.99	267.73	1,291.04	6.26
2	Eastern Grid	587.64	65.61	62.67	633.00	2.94
Total		2,263.64	339.60	330.40	1,924.04	9.20

Note: MAT 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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