

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: September 2, 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	185.68	400kV THP - Siliguri Line - I	330.91	400kV Malbase_Siliguri Line under shutdown.
		Unit- II	186.06	400kV THP - Siliguri Line - II	327.93	
		Unit- III	185.01	400kV THP - Siliguri Line- IV	319.79	
		Unit- IV	184.73	400kV THP - Malbase Line - III	123.72	
		Unit- V	184.86	400kV Malbase - Siliguri Line	0.00	
		Unit- VI	185.46	-	-	
		Total	1,111.80	Auxiliary Consumption & Transformation Losses at Generator end	0.85%	
2	720MW MHP	Unit-I	197.86	400kV MHP - Jigmeling Line - I	360.99	400kV MHP-JLG Line II & III on Standby. 132kV MHP_Yurmo line I & II not in service. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	197.86	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	135.42	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	197.89	400kV MHP - Jigmeling Line - IV	362.36	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	67.48	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	161.79	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	242.07	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	242.76	
		-	-	80MVA, 220/132kV ICT - I (HV)	39.60	
		-	-	80MVA, 220/132kV ICT - II (HV)	40.40	
		-	-	220kV Tsirang - Jigmeling Line	-10.90	
-	-	132kV Gelephu - Salakati Line	10.80			
Total	729.03	Auxiliary Consumption & Transformation Losses at Generator end	0.78%			
3	336MW CHP	Unit- I	91.45	220kV CHP - Birpara Line- I	81.78	
		Unit- II	90.86	220kV CHP - Birpara Line- II	81.69	
		Unit- III	92.01	220kV CHP - Malbase Line- III	101.82	
		Unit- IV	75.48	220kV CHP - Semtokha Line- IV	61.51	
		-	-	220kV Malbase - Birpara Line	56.19	
		-	-	66kV CHP - Chumdo Line	16.00	
		-	-	66kV CHP - Gedu Line	4.78	
		-	-	3x3MVA, 66/11kV TFR	1.39	
Total	349.80	Auxiliary Consumption & Transformation Losses at Generator end	0.24%			
4	24MW BHP (U/S)	Unit- I	11.87	220kV BHP - Semtokha Line	44.86	
		Unit- II	11.87	66kV BHP - Lobeyasa Line	27.25	
		Total	23.74	220kV BHP - Tsirang Line	-8.60	
5	40MW BHP (L/S)	Unit- I	20.47	5MVA, 66/11kV TFR	0.69	
		Unit- II	21.02	30MVA ICT, 220/66kV (HV)	4.30	
		Total	41.49	Auxiliary Consumption & Transformation Losses at Generator end	1.58%	
6	126MW DHP	Unit-I	40.37	220kV DHP - Tsirang Line	0.00	220kV DHP_Tsirang Line on Standby.
		Unit-II	39.06	220kV DHP - Dagapela Line	78.90	
		-	-	220kV Jigmeling - Dagapela Line	-23.51	
		-	-	5MVA, 220/33kV TFR	0.40	
Total	79.43	Auxiliary Consumption & Transformation Losses at Gen. end	0.16%			
7	60MW KHP	Unit- I	16.51	132kV KHP - Nangkhor Line	37.01	
		Unit-II	16.61	132kV KHP - Kilikhar Line	27.89	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.68	
		Unit- IV	16.52	132kV Motanga - Rangia Line	33.15	
		Total	66.14	Auxiliary Consumption & Transformation Losses at Generator end	0.85%	

Note: Generation-Load Summary (MW) for September 02, 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	1,606.26	395.36	383.92	1,198.29	11.44
2	Eastern Grid	795.17	117.21	110.97	690.57	6.24
Total		2,401.43	512.57	494.89	1,888.86	17.69

Note: Generation-Load Summary for September 02, 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	1,671.40	315.07	309.69	1,263.52	5.38
2	Eastern Grid	853.30	82.31	76.91	863.80	5.40
Total		2,524.70	397.38	386.60	2,127.32	10.78

NOTE- SAL & 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: September 3, 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	185.27	400kV THP - Siliguri Line - I	270.07	
		Unit- II	186.15	400kV THP - Siliguri Line - II	269.86	
		Unit- III	185.01	400kV THP - Siliguri Line- IV	263.41	
		Unit- IV	185.67	400kV THP - Malbase Line - III	302.57	
		Unit- V	185.86	400kV Malbase - Siliguri Line	250.49	
		Unit- VI	184.94	-	-	
		Total	1,112.90	Auxiliary Consumption & Transformation Losses at Generator end	0.63%	
2	720MW MHP	Unit-I	197.86	400kV MHP - Jigmeling Line - I	360.99	400kV MHP-JLG Line II & III under standby 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) on Standby.
		Unit-II	197.86	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	135.42	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	197.89	400kV MHP - Jigmeling Line - IV	362.36	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	14.41	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	174.52	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	261.50	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	261.10	
		-	-	80MVA, 220/132kV ICT - I (HV)	24.39	
		-	-	80MVA, 220/132kV ICT - II (HV)	24.79	
		-	-	220kV Tsirang - Jigmeling Line	-10.00	
-	-	132kV Gelephu - Salakati Line	11.40			
Total	729.03	Auxiliary Consumption & Transformation Losses at Generator end	0.78%			
3	336MW CHP	Unit- I	91.37	220kV CHP - Birpara Line- I	79.61	
		Unit- II	91.34	220kV CHP - Birpara Line- II	79.51	
		Unit- III	92.00	220kV CHP - Malbase Line- III	126.61	
		Unit- IV	75.48	220kV CHP - Semtokha Line- IV	45.48	
		-	-	220kV Malbase - Birpara Line	33.12	
		-	-	66kV CHP - Chumdo Line	11.87	
		-	-	66kV CHP - Gedu Line	5.05	
		-	-	3x3MVA, 66/11kV TFR	1.01	
Total	350.19	Auxiliary Consumption & Transformation Losses at Generator end	0.30%			
4	24MW BHP (U/S)	Unit- I	12.50	220kV BHP - Semtokha Line	49.03	
		Unit- II	12.10	66kV BHP - Lobeyasa Line	25.07	
		Total	24.60	220kV BHP - Tsirang Line	-9.03	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.43	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	1.65	
		Total	41.60	Auxiliary Consumption & Transformation Losses at Generator end	1.06%	
6	126MW DHP	Unit-I	50.46	220kV DHP - Tsirang Line	0.00	220kV DHP_TSI Line on Standby.
		Unit-II	50.06	220kV DHP - Dagapela Line	100.00	
		-	-	220kV Jigmeling - Dagapela Line	-45.22	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	100.52	Auxiliary Consumption & Transformation Losses at Generator end	0.32%			
7	60MW KHP	Unit- I	16.56	132kV KHP - Nangkhoh Line	43.92	
		Unit-II	16.51	132kV KHP - Kilikhar Line	21.19	
		Unit- III	16.57	5MVA, 132/11kV TFR	0.40	
		Unit- IV	16.56	132kV Motanga - Rangia Line	23.01	
		Total	66.20	Auxiliary Consumption & Transformation Losses at Generator end	1.04%	

Note: Generation-Load Summary (MW) for September 03, 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	1,629.81	348.52	339.46	1,246.07	9.06
2	Eastern Grid	795.23	98.92	92.55	731.53	6.37
Total		2,425.04	447.44	432.01	1,977.60	15.43

Note: Generation-Load Summary for September 03, 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	1,674.05	297.87	288.76	1,280.27	9.11
2	Eastern Grid	855.38	67.05	61.92	884.24	5.13
Total		2,529.43	364.92	350.68	2,164.51	14.24

Notes: SAL & 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.