

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date: **September 9, 2021**
Hours: **19:00 Hours**

Date	Time	Load(MW)
27-Dec-18	18:18hrs	399.35MW

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Sign	Remarks
1	1020MW THP	Unit- I	186.00	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	184.87	400kV THP - Siliguri Line - II	351.49	+	
		Unit- III	186.22	400kV THP - Siliguri Line- IV	336.26	+	
		Unit- IV	185.02	400kV THP - Malbase Line - III	418.10	+	
		Unit- V	185.43	400kV Malbase - Siliguri Line	310.81	+	
		Unit- VI	186.09	-	-	-	
		Total	1,113.63	Auxiliary Consumption & Transformation Losses at Gen. end	0.699%		
2	720MW MHP	Unit-I	197.96	400kV MHP - Jigmeling Line - I	391.71	+	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. (There is MW power difference of 16.56 MW between Total MHP generation & outgoing feeder at JLG end)
		Unit-II	197.80	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	197.64	400kV MHP - Jigmeling Line - III	393.60	+	
		Unit-IV	197.95	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)	-5.60	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	194.16	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	293.30	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	292.93	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	41.00	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	41.10	+	
		-	-	220kV Tsirang - Jigmeling Line	90.32	+	
-	-	132kV Gelephu - Salakati Line	29.96	+			
Total	791.35	Auxiliary Consumption & Transformation Losses at Gen. end	0.763%				
3	336MW CHP	Unit- I	91.54	220kV CHP - Birpara Line- I	101.26	+	
		Unit- II	91.29	220kV CHP - Birpara Line- II	101.38	+	
		Unit- III	91.90	220kV CHP - Malbase Line- III	115.56	+	
		Unit- IV	91.83	220kV CHP - Semtokha Line- IV	30.27	+	
		-	-	220kV Malbase - Birpara Line	75.85	+	
		-	-	66kV CHP - Chumdo Line	10.38	+	
		-	-	66kV CHP - Gedu Line	5.97	+	
		-	-	3x3MVA, 66/11kV TFR	1.31	+	
		Total	366.56	Auxiliary Consumption & Transformation Losses at Gen. end	0.117%		
4	24MW BHP (U/S)	Unit- I	12.40	220kV BHP - Semtokha Line	87.00	+	
		Unit- II	12.30	66kV BHP - Lobeysa Line	10.00	+	
		Total	24.70	220kV BHP - Tsirang Line	-32.01	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	-13.48	-	
		Total	41.80	Auxiliary Consumption & Transformation Losses at Gen. end	0.932%		
6	126MW DHP	Unit-I	63.55	220kV DHP - Tsirang Line	126.03	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	2.30	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	126.55	Auxiliary Consumption & Transformation Losses at Gen. end	0.174%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Line	36.12	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	28.70	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.48	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	47.35	+	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Gen. end	1.061%		

Note: Generation-Load Summary (MW) for September 09, 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) at Generator end.
1	Western Grid	1,673.24	305.87	299.12	1,277.05	6.75
2	Eastern Grid	857.35	89.97	83.23	857.70	6.74
Total		2,530.59	395.84	382.35	2,134.75	13.49

Note: Generation-Load Summary for September 09, 2020 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
1	Western Grid	1,670.18	217.08	202.91	1,357.66	14.17
2	Eastern Grid	846.41	64.21	59.18	877.64	5.03
Total		2,516.59	281.29	262.09	2,235.30	19.20

NOTE-BHP, JLG, KHP and MHPA data collected from site

1. The Instantaneous load balance is calculated as (Total generation - (Total export-Import) - Total domestic load) do not tend towards zero. This could be due to the following reasons:

- i) 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.
- ii) The clocks of all the locations are not synchronized.

2. 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

Maximum Load/Demand till Date

Date:	September 10, 2021
Hours:	09:00 Hours

Date	Time	Load(MW)
27-Dec-18	18:18hrs	399.35MW

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Sign	Remarks
1	1020MW THP	Unit- I	185.27	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	186.13	400kV THP - Siliguri Line - II	362.27	+	
		Unit- III	185.37	400kV THP - Siliguri Line- IV	346.13	+	
		Unit- IV	185.83	400kV THP - Malbase Line - III	397.59	+	
		Unit- V	185.89	400kV Malbase - Siliguri Line	328.55	+	
		Unit- VI	185.79	-	-	-	
		Total	1,114.28	Auxiliary Consumption & Transformation Losses at Generator end	0.744%		
2	720MW MHP	Unit-I	197.98	400kV MHP - Jigmeling Line - I	391.27	+	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. (There is MW power difference of 15.14MW between Total MHP generation & outgoing feeder at JLG end)
		Unit-II	196.74	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	197.69	400kV MHP - Jigmeling Line - III	393.30	+	
		Unit-IV	196.68	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)	-41.69	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	202.16	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	307.56		
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	306.89	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	-28.65	-	
		-	-	80MVA, 220/132kV ICT - II (HV)	-28.74	-	
		-	-	220kV Tsirang - Jigmeling Line	100.44	+	
-	-	132kV Gelephu - Salakati Line	28.26	+			
Total	789.09	Auxiliary Consumption & Transformation Losses at Generator end	0.573%				
3	336MW CHP	Unit- I	91.75	220kV CHP - Birpara Line- I	99.28	+	
		Unit- II	91.44	220kV CHP - Birpara Line- II	99.98	+	
		Unit- III	91.25	220kV CHP - Malbase Line- III	129.41	+	
		Unit- IV	90.95	220kV CHP - Semtokha Line- IV	23.20	+	
		-	-	220kV Malbase - Birpara Line	62.15	+	
		-	-	66kV CHP - Chumdo Line	6.64	+	
		-	-	66kV CHP - Gedu Line	6.09	+	
		-	-	3x3MVA, 66/11kV TFR	0.70	+	
Total	365.39	Auxiliary Consumption & Transformation Losses at Generator end	0.025%				
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	82.00	+	
		Unit- II	12.20	66kV BHP - Lobeysa Line	6.31	+	
		Total	24.50	220kV BHP - Tsirang Line	-23.83	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	-17.33	-	
		Total	41.80	Auxiliary Consumption & Transformation Losses at Generator end	1.388%		
6	126MW DHP	Unit-I	63.63	220kV DHP - Tsirang Line	126.22	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.20	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.21	+	
		-	-	5MVA, 220/33kV TFR	0.30		
		Total	126.83	Auxiliary Consumption & Transformation Losses at Generator end	0.244%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Line	41.15	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	24.00	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.31	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	40.27	+	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Generator end	0.818%		

Note: Generation-Load Summary (MW) for September 10, 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) at Generator end.
1	Western Grid	1,672.80	274.00	265.60	1,298.36	8.40
2	Eastern Grid	855.09	70.39	65.33	885.14	5.06
	Total	2,527.89	344.39	330.93	2,183.50	13.46

Note: Generation-Load Summary for September 10, 2020 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
1	Western Grid	1,660.86	192.04	174.92	1,387.95	17.12
2	Eastern Grid	837.01	48.93	45.87	868.95	3.06
	Total	2,497.87	240.97	220.79	2,256.90	20.18

NOTE-BHP, JLG, KHP and MHPA data collected from site

- The Instantaneous load balance is 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.