

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date: **October 19, 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	186.03	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	186.08	400kV THP - Siliguri Line - II	337.97	+	
		Unit- III	186.10	400kV THP - Siliguri Line- IV	322.97	+	
		Unit- IV	184.17	400kV THP - Malbase Line - III	443.01	+	
		Unit- V	185.17	400kV Malbase - Siliguri Line	290.34	+	
		Unit- VI	185.30	-	-	-	
		Total	1,112.85	Auxiliary Consumption & Transformation Losses at Gen. end	0.800%		
2	720MW MHP	Unit-I	197.83	400kV MHP - Jigmeling Line - I	390.64	+	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	196.43	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	197.79	400kV MHP - Jigmeling Line - III	392.68	+	
		Unit-IV	196.31	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)	12.59	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	188.34	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	284.95	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	284.95	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	30.56	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	30.98	+	
		-	-	220kV Tsirang - Jigmeling Line	53.26	+	
-	-	132kV Gelephu - Salakati Line	24.93	+			
Total	788.36	Auxiliary Consumption & Transformation Losses at Gen. end	0.639%				
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	26.00	+	Unit I & Unit IV opened due to intake choke. 66kV CHP_Gedu line opened at 10:01hrs (08/10/2021) to regulate 66kV voltage.
		Unit- II	18.00	220kV CHP - Birpara Line- II	26.03	+	
		Unit- III	59.00	220kV CHP - Malbase Line- III	23.40	+	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	-23.40	-	
		-	-	220kV Malbase - Birpara Line	26.02	+	
		-	-	66kV CHP - Chumdo Line	25.28	+	
		-	-	66kV CHP - Gedu Line	0.00		
		-	-	3x3MVA, 66/11kV TFR	1.20	+	
		Total	77.00	Auxiliary Consumption & Transformation Losses at Gen. end	-1.961%		
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	134.00	+	66kV BHP-Lobesa line under shutdown.
		Unit- II	12.20	66kV BHP - Lobaysa Line	0.00	+	
		Total	24.50	220kV BHP - Tsirang Line	-68.52	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.57	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	-23.24	+	
		Total	41.70	Auxiliary Consumption & Transformation Losses at Gen. end	0.227%		
6	126MW DHP	Unit-I	63.63	220kV DHP - Tsirang Line	126.23	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.20	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	3.78	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	126.83	Auxiliary Consumption & Transformation Losses at Gen. end	0.237%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkor Line	40.45	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	24.90	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	35.80	+	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Gen. end	0.379%		

Note: Generation-Load Summary (MW) for October 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) at Generator end.
1	Western Grid	1,382.88	300.29	296.23	1,029.33	4.06
2	Eastern Grid	854.36	88.65	83.36	818.97	5.29
	Total	2,237.24	388.94	379.59	1,848.30	9.35

Note: Generation-Load Summary for October 19, 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	981.51	182.77	173.60	729.43	9.17
2	Eastern Grid	429.84	59.99	56.07	439.16	3.92
	Total	1,411.35	242.76	229.67	1,168.59	13.09

NOTE-BHP, MHPA, CHP and Rangia 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:	October 20, 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	185.41	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	185.69	400kV THP - Siliguri Line - II	340.62	+	
		Unit- III	185.97	400kV THP - Siliguri Line- IV	324.42	+	
		Unit- IV	183.94	400kV THP - Malbase Line - III	441.71	+	
		Unit- V	185.78	400kV Malbase - Siliguri Line	293.52	+	
		Unit- VI	185.84	-	-	-	
		Total	1,112.63	Auxiliary Consumption & Transformation Losses at Generator end	0.528%		
2	720MW MHP	Unit-I	197.84	400kV MHP - Jigmeling Line - I	391.24	+	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	196.20	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	197.83	400kV MHP - Jigmeling Line - III	393.03	+	
		Unit-IV	196.50	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)	2.22	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	190.53	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	289.38	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	288.73	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	21.06	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	21.39	+	
		-	-	220kV Tsirang - Jigmeling Line	43.63	+	
-	-	132kV Gelephu - Salakati Line	19.89	+			
Total	788.37	Auxiliary Consumption & Transformation Losses at Generator end	0.520%				
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	9.29	+	CHP all Units under Shutdown. 66kV CHP_Gedu line opened at 10:01hrs (08/10/2021) to regulate 66kV voltage.
		Unit- II	0.00	220kV CHP - Birpara Line- II	9.14	+	
		Unit- III	0.00	220kV CHP - Malbase Line- III	2.94	+	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	-41.60	-	
		-	-	220kV Malbase - Birpara Line	13.00	+	
		-	-	66kV CHP - Chumdo Line	18.97	+	
		-	-	66kV CHP - Gedu Line	0.00		
		-	-	3x3MVA, 66/11kV TFR	0.86	+	
Total	0.00	Auxiliary Consumption & Transformation Losses at Generator end	0.000%				
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	144.20	+	66kV BHP_Lobeysa Line under Shutdown.
		Unit- II	12.20	66kV BHP - Lobeysa Line	0.00	+	
		Total	24.50	220kV BHP - Tsirang Line	-78.59	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.38		
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	-23.41	-	
		Total	41.70	Auxiliary Consumption & Transformation Losses at Generator end	0.317%		
6	126MW DHP	Unit-I	63.58	220kV DHP - Tsirang Line	126.24	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.15	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	3.31	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	126.73	Auxiliary Consumption & Transformation Losses at Generator end	0.150%		
7	60MW KHP	Unit- I	16.60	132kV KHP - Nangkhoh Line	42.47	+	
		Unit-II	16.59	132kV KHP - Kilikhar Line	22.94	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.32	+	
		Unit- IV	16.70	132kV Motanga - Rangia Line	30.57	+	
		Total	66.39	Auxiliary Consumption & Transformation Losses at Generator end	0.994%		

Note: Generation-Load Summary (MW) for October 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) at Generator end.
1	Western Grid	1,305.56	271.94	268.57	989.99	3.37
2	Eastern Grid	854.76	79.29	74.53	819.10	4.76
	Total	2,160.32	351.23	343.10	1,809.09	8.13

Note: Generation-Load Summary for October 20, 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	979.63	176.66	168.55	744.31	8.11
2	Eastern Grid	405.69	35.22	32.50	429.13	2.72
	Total	1,385.32	211.88	201.05	1,173.44	10.83

NOTE-BHP, MHPA, JLG & Rangia 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.
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