

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date: **October 26, 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	136.91	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown. Unit-VI on Standby
		Unit- II	183.32	400kV THP - Siliguri Line - II	279.88	+	
		Unit- III	185.08	400kV THP - Siliguri Line- IV	267.38	+	
		Unit- IV	184.22	400kV THP - Malbase Line - III	320.64	+	
		Unit- V	184.51	400kV Malbase - Siliguri Line	250.80	+	
		Unit- VI	0.00	-	-	-	
		Total	874.04	Auxiliary Consumption & Transformation Losses at Gen. end	0.702%		
2	720MW MHP	Unit-I	130.23	400kV MHP - Jigmeling Line - I	173.60	+	Unit-IV on Standby. 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	100.14	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	120.70	400kV MHP - Jigmeling Line - III	174.75	+	
		Unit-IV	0.00	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)	-15.57	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	86.54	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	136.70	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	135.66	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	26.71	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	27.07	+	
		-	-	220kV Tsirang - Jigmeling Line	73.80	+	
-	-	132kV Gelephu - Salakati Line	17.33	+			
Total	351.07	Auxiliary Consumption & Transformation Losses at Gen. end	0.775%				
3	336MW CHP	Unit- I	91.70	220kV CHP - Birpara Line- I	88.72	+	66kV CHP_Gedu line opened at 10:01hrs (08/10/2021) to regulate 66kV voltage.
		Unit- II	91.54	220kV CHP - Birpara Line- II	88.78	+	
		Unit- III	91.29	220kV CHP - Malbase Line- III	123.07	+	
		Unit- IV	91.58	220kV CHP - Semtokha Line- IV	47.60	+	
		-	-	220kV Malbase - Birpara Line	48.80	+	
		-	-	66kV CHP - Chumdo Line	16.24	+	
		-	-	66kV CHP - Gedu Line	0.00		
		-	-	3x3MVA, 66/11kV TFR	1.48	+	
Total	366.11	Auxiliary Consumption & Transformation Losses at Gen. end	0.060%				
4	24MW BHP (U/S)	Unit- I	12.20	220kV BHP - Semtokha Line	54.80	+	Lobeysa Line
		Unit- II	12.10	66kV BHP - Lobeysa Line	28.90	+	
		Total	24.30	220kV BHP - Tsirang Line	-19.20	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.74	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	6.06	+	
		Total	41.70	Auxiliary Consumption & Transformation Losses at Gen. end	1.152%		
6	126MW DHP	Unit-I	48.38	220kV DHP - Tsirang Line	96.91	+	220kV DHP_Dagapela Line on standby.
		Unit-II	48.97	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	4.05	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	97.35	Auxiliary Consumption & Transformation Losses at Gen. end	0.144%		
7	60MW KHP	Unit- I	16.49	132kV KHP - Nangkhoh Line	38.94	+	
		Unit-II	16.53	132kV KHP - Kilikhar Line	26.16	+	
		Unit- III	16.49	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	16.61	132kV Motanga - Rangia Line	37.20	+	
		Total	66.12	Auxiliary Consumption & Transformation Losses at Gen. end	1.089%		

Note: Generation-Load Summary (MW) for October 26, 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	1,403.50	305.34	302.13	1,024.36	3.21
2	Eastern Grid	417.19	77.56	74.12	413.43	3.44
	Total	1,820.69	382.90	376.25	1,437.79	6.65

Note: Generation-Load Summary for October 26, 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	1,477.02	208.22	194.46	1,174.80	13.76
2	Eastern Grid	621.00	55.06	50.27	659.94	4.79
	Total	2,098.02	263.28	244.73	1,834.74	18.55

NOTE-BHP, MHPA 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 27, 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	136.74	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	137.72	400kV THP - Siliguri Line - II	267.87	+	
		Unit- III	138.73	400kV THP - Siliguri Line- IV	257.02	+	
		Unit- IV	169.04	400kV THP - Malbase Line - III	288.15	+	
		Unit- V	137.60	400kV Malbase - Siliguri Line	245.10	+	
		Unit- VI	100.37	-	-	-	
		Total	820.20	Auxiliary Consumption & Transformation Losses at Generator end	0.873%		
2	720MW MHP	Unit-I	115.23	400kV MHP - Jigmeling Line - I	166.95	+	Unit IV under Standby. 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line I (Interim) on standby.
		Unit-II	100.18	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	120.73	400kV MHP - Jigmeling Line - III	167.84	+	
		Unit-IV	0.00	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)	-38.30	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	90.17	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	139.25	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	138.24	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	20.00	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	19.10	+	
		-	-	220kV Tsirang - Jigmeling Line	80.10	+	
-	-	132kV Gelephu - Salakati Line	14.24	+			
Total	336.14	Auxiliary Consumption & Transformation Losses at Generator end	0.402%				
3	336MW CHP	Unit- I	91.83	220kV CHP - Birpara Line- I	83.83	+	66kV CHP_Gedu line opened at 10:01hrs (08/10/2021) to regulate 66kV voltage.
		Unit- II	91.84	220kV CHP - Birpara Line- II	83.51	+	
		Unit- III	91.40	220kV CHP - Malbase Line- III	140.81	+	
		Unit- IV	91.61	220kV CHP - Semtokha Line- IV	44.38	+	
		-	-	220kV Malbase - Birpara Line	27.83	+	
		-	-	66kV CHP - Chumdo Line	12.90	+	
		-	-	66kV CHP - Gedu Line	0.00		
		-	-	3x3MVA, 66/11kV TFR	1.10	+	
Total	366.68	Auxiliary Consumption & Transformation Losses at Generator end	0.041%				
4	24MW BHP (U/S)	Unit- I	12.00	220kV BHP - Semtokha Line	46.80	+	
		Unit- II	11.80	66kV BHP - Lobeysa Line	26.56	+	
		Total	23.80	220kV BHP - Tsirang Line	-8.90	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	3.71	+	
		Total	41.80	Auxiliary Consumption & Transformation Losses at Generator end	0.381%		
6	126MW DHP	Unit-I	47.37	220kV DHP - Tsirang Line	91.93	+	220kV DHP_Dagapela Line on standby.
		Unit-II	44.98	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	3.30	+	
		-	-	5MVA, 220/33kV TFR	0.40	+	
		Total	92.35	Auxiliary Consumption & Transformation Losses at Generator end	0.022%		
7	60MW KHP	Unit- I	15.52	132kV KHP - Nangkhoh Line	39.84	+	
		Unit-II	15.46	132kV KHP - Kilikhar Line	21.28	+	
		Unit- III	15.49	5MVA, 132/11kV TFR	0.27	+	
		Unit- IV	15.49	132kV Motanga - Rangia Line	24.15	+	
		Total	61.96	Auxiliary Consumption & Transformation Losses at Generator end	0.920%		

Note: Generation-Load Summary (MW) for October 27, 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	1,344.83	299.57	295.29	965.16	4.28
2	Eastern Grid	398.10	72.15	70.23	406.05	1.92
	Total	1,742.93	371.72	365.52	1,371.21	6.20

Note: Generation-Load Summary for October 27, 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	1,162.40	217.64	206.63	886.10	11.01
2	Eastern Grid	435.91	39.72	37.96	454.85	1.76
	Total	1,598.31	257.36	244.59	1,340.95	12.77

NOTE-BHP, MHPA & Rangia data collected from site.

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