

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date: **October 12, 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	117.95	400kV THP - Siliguri Line - I	0.00		Unit-II on Standby. 400kV THP-Siliguri line I under breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	166.74	+	
		Unit- III	99.13	400kV THP - Siliguri Line- IV	159.61	+	
		Unit- IV	118.84	400kV THP - Malbase Line - III	243.34	+	
		Unit- V	117.57	400kV Malbase - Siliguri Line	138.16	+	
		Unit- VI	120.01	-	-	-	
		Total	573.50	Auxiliary Consumption & Transformation Losses at Gen. end	0.664%		
2	720MW MHP	Unit-I	120.86	400kV MHP - Jigmeling Line - I	159.20	+	Unit-II under shutdown. 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo lineI & II not in service. 400kV JLG_ALI Line I (Interim) on standby. 132kV Gelephu_Salakati line under shutdown.
		Unit-II	0.00	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	120.07	400kV MHP - Jigmeling Line - III	159.80	+	
		Unit-IV	80.32	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)	16.18	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	77.08	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	118.81	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	118.81	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	20.50	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	20.80	+	
		-	-	220kV Tsirang - Jigmeling Line	28.80	+	
-	-	132kV Gelephu - Salakati Line	0.00				
Total	321.25	Auxiliary Consumption & Transformation Losses at Gen. end	0.700%				
3	336MW CHP	Unit- I	75.02	220kV CHP - Birpara Line- I	67.73	+	66kV CHP_Gedu line opened at 10:01hrs(08/10/2021) to regulate 66kV voltage.
		Unit- II	74.28	220kV CHP - Birpara Line- II	67.85	+	
		Unit- III	74.23	220kV CHP - Malbase Line- III	91.61	+	
		Unit- IV	74.21	220kV CHP - Semtokha Line- IV	39.38	+	
		-	-	220kV Malbase - Birpara Line	40.11	+	
		-	-	66kV CHP - Chumdo Line	28.74	+	
		-	-	66kV CHP - Gedu Line	0.00		
		-	-	3x3MVA, 66/11kV TFR	1.43	+	
Total	297.74	Auxiliary Consumption & Transformation Losses at Gen. end	0.336%				
4	24MW BHP (U/S)	Unit- I	9.10	220kV BHP - Semtokha Line	43.70	+	
		Unit- II	8.90	66kV BHP - Lobeyssa Line	30.00	+	
		Total	18.00	220kV BHP - Tsirang Line	-22.03	-	
5	40MW BHP (L/S)	Unit- I	16.90	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	16.90	30MVA ICT, 220/66kV (HV)	12.25	+	
		Total	33.80	Auxiliary Consumption & Transformation Losses at Gen. end	-1.486%		
6	126MW DHP	Unit-I	54.33	220kV DHP - Tsirang Line	54.07	+	DHP Unit II on standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	2.53	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	54.33	Auxiliary Consumption & Transformation Losses at Gen. end	-0.074%		
7	60MW KHP	Unit- I	16.54	132kV KHP - Nangkhoh Line	37.11	+	
		Unit-II	16.47	132kV KHP - Kilikhar Line	27.99	+	
		Unit- III	16.53	5MVA, 132/11kV TFR	0.46	+	
		Unit- IV	16.64	132kV Motanga - Rangia Line	46.20	+	
		Total	66.18	Auxiliary Consumption & Transformation Losses at Gen. end	0.943%		

Note: Generation-Load Summary (MW) for October 12, 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	977.37	308.37	306.90	640.20	1.47
2	Eastern Grid	387.43	55.33	52.46	360.90	2.87
	Total	1,364.80	363.70	359.36	1,001.10	4.34

Note: Generation-Load Summary for October 12, 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	1,232.22	191.54	181.05	956.57	10.49
2	Eastern Grid	471.76	60.35	56.69	495.52	3.66
	Total	1,703.98	251.89	237.74	1,452.09	14.15

NOTE-BHP 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:	October 13, 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	117.92	400kV THP - Siliguri Line - I	0.00		Unit-II on standby. 400kV THP-Siliguri line I under breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	171.03	+	
		Unit- III	99.75	400kV THP - Siliguri Line- IV	163.04	+	
		Unit- IV	98.96	400kV THP - Malbase Line - III	214.54	+	
		Unit- V	118.08	400kV Malbase - Siliguri Line	148.78	+	
		Unit- VI	120.50	-	-	-	
		Total	555.21	Auxiliary Consumption & Transformation Losses at Generator end	1.189%		
2	720MW MHP	Unit-I	119.86	400kV MHP - Jigmeling Line - I	168.75	+	MHP Unit III under shutdown. 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	119.84	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	169.81	+	
		Unit-IV	100.05	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)	9.70	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	79.99	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	122.02	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	122.02	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	24.10	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	24.40	+	
		-	-	220kV Tsirang - Jigmeling Line	41.17	+	
-	-	132kV Gelephu - Salakati Line	13.85	+			
Total	339.75	Auxiliary Consumption & Transformation Losses at Generator end	0.350%				
3	336MW CHP	Unit- I	70.48	220kV CHP - Birpara Line- I	56.59	+	66kV CHP_Gedu line opened at 10:01hrs (08/10/2021) to regulate 66kV voltage.
		Unit- II	73.12	220kV CHP - Birpara Line- II	56.87	+	
		Unit- III	73.73	220kV CHP - Malbase Line- III	107.92	+	
		Unit- IV	72.13	220kV CHP - Semtokha Line- IV	47.25	+	
		-	-	220kV Malbase - Birpara Line	9.13	+	
		-	-	66kV CHP - Chumdo Line	19.21	+	
		-	-	66kV CHP - Gedu Line	0.00		
		-	-	3x3MVA, 66/11kV TFR	0.90	+	
Total	289.46	Auxiliary Consumption & Transformation Losses at Generator end	0.249%				
4	24MW BHP (U/S)	Unit- I	9.00	220kV BHP - Semtokha Line	31.40	+	
		Unit- II	8.90	66kV BHP - Lobeysa Line	26.35	+	
		Total	17.90	220kV BHP - Tsirang Line	-8.71	-	
5	40MW BHP (L/S)	Unit- I	16.30	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	16.30	30MVA ICT, 220/66kV (HV)	9.73	+	
		Total	32.60	Auxiliary Consumption & Transformation Losses at Generator end	1.109%		
6	126MW DHP	Unit-I	53.34	220kV DHP - Tsirang Line	53.10	+	DHP Unit II on standby. 220kV DHP_Dagapela Line on standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.90	+	
		-	-	5MVA, 220/33kV TFR	0.27	+	
		Total	53.34	Auxiliary Consumption & Transformation Losses at Generator end	-0.056%		
7	60MW KHP	Unit- I	14.10	132kV KHP - Nangkhon Line	34.34	+	
		Unit-II	14.09	132kV KHP - Kilikhar Line	21.16	+	
		Unit- III	14.02	5MVA, 132/11kV TFR	0.31	+	
		Unit- IV	14.12	132kV Motanga - Rangia Line	51.27	+	
		Total	56.33	Auxiliary Consumption & Transformation Losses at Generator end	0.923%		

Note: Generation-Load Summary (MW) for October 13, 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	948.51	301.90	295.95	605.44	5.95
2	Eastern Grid	396.08	48.10	46.39	389.15	1.71
	Total	1,344.59	350.00	342.34	994.59	7.66

Note: Generation-Load Summary for October 13, 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	1,129.64	182.85	170.15	875.79	12.70
2	Eastern Grid	504.87	46.08	43.89	529.79	2.19
	Total	1,634.51	228.93	214.04	1,405.58	14.89

NOTE-BHP & 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.
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