

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date: August 27, 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	185.35	400kV THP - Siliguri Line - I	0.00		Unit II under emergency shutdown. 400kV THP-Siliguri line I under breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	290.63	+	
		Unit- III	185.87	400kV THP - Siliguri Line- IV	278.50	+	
		Unit- IV	185.37	400kV THP - Malbase Line - III	352.06	+	
		Unit- V	184.98	400kV Malbase - Siliguri Line	257.24	+	
		Unit- VI	185.65	-	-	-	
		Total	927.22	Auxiliary Consumption & Transformation Losses at Gen. end	0.650%		
2	720MW MHP	Unit-I	197.80	400kV MHP - Jigmeling Line - I	391.39	+	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	196.76	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	197.72	400kV MHP - Jigmeling Line - III	393.38	+	
		Unit-IV	197.39	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)	-21.70	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	198.53	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	298.11	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	298.11	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	36.00	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	36.10	+	
		-	-	220kV Tsirang - Jigmeling Line	95.06	+	
-	-	132kV Gelephu - Salakati Line	33.61	+			
Total	789.67	Auxiliary Consumption & Transformation Losses at Gen. end	0.621%				
3	336MW CHP	Unit- I	91.90	220kV CHP - Birpara Line- I	98.52	+	
		Unit- II	91.50	220kV CHP - Birpara Line- II	98.61	+	
		Unit- III	92.01	220kV CHP - Malbase Line- III	129.38	+	
		Unit- IV	91.53	220kV CHP - Semtokha Line- IV	22.26	+	
		-	-	220kV Malbase - Birpara Line	60.56	+	
		-	-	66kV CHP - Chumdo Line	10.28	+	
		-	-	66kV CHP - Gedu Line	5.65	+	
		-	-	3x3MVA, 66/11kV TFR	1.34	+	
Total	366.94	Auxiliary Consumption & Transformation Losses at Gen. end	0.245%				
4	24MW BHP (U/S)	Unit- I	12.40	220kV BHP - Semtokha Line	65.01	+	
		Unit- II	12.30	66kV BHP - Lobeysa Line	26.05	+	
		Total	24.70	220kV BHP - Tsirang Line	-26.54	-	
5	40MW BHP (L/S)	Unit- I	20.70	5MVA, 66/11kV TFR	0.87	+	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	2.49	+	
		Total	41.80	Auxiliary Consumption & Transformation Losses at Gen. end	1.669%		
6	126MW DHP	Unit-I	63.65	220kV DHP - Tsirang Line	126.25	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.17	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	2.00	+	
		-	-	5MVA, 220/33kV TFR	0.54	+	
		Total	126.82	Auxiliary Consumption & Transformation Losses at Gen. end	0.024%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkor Line	36.77	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	26.28	+	
		Unit- III	15.35	5MVA, 132/11kV TFR	0.35	+	
		Unit- IV	16.10	132kV Motanga - Rangia Line	35.54	+	
		Total	64.45	Auxiliary Consumption & Transformation Losses at Gen. end	1.629%		

Note: Generation-Load Summary (MW) for August 27, 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	1,487.48	308.36	302.29	1,084.06	6.07
2	Eastern Grid	854.12	85.28	79.33	863.90	5.95
	Total	2,341.60	393.64	381.62	1,947.96	12.02

Note: Generation-Load Summary for August 27, 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	1,665.19	217.18	199.48	1,330.05	17.70
2	Eastern Grid	686.34	80.55	75.96	723.75	4.59
	Total	2,351.53	297.73	275.44	2,053.80	22.29

NOTE-BHP and MHP 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:	August 28, 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	184.65	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	188.63	400kV THP - Siliguri Line - II	358.73	+	
		Unit- III	185.72	400kV THP - Siliguri Line- IV	340.74	+	
		Unit- IV	185.36	400kV THP - Malbase Line - III	407.01	+	
		Unit- V	185.94	400kV Malbase - Siliguri Line	319.96	+	
		Unit- VI	185.32	-	-	-	
		Total	1,115.62	Auxiliary Consumption & Transformation Losses at Generator end	0.819%		
2	720MW MHP	Unit-I	0.00	400kV MHP - Jigmeling Line - I	292.90	+	Unit-I tripped at 08:27hrs. 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. 500MVA ICT at JLG tripped.
		Unit-II	196.76	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	197.89	400kV MHP - Jigmeling Line - III	293.80	+	
		Unit-IV	190.96	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)	-59.50	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	158.53	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	238.07	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	238.07	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	24.4	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	24.50	+	
		-	-	220kV Tsirang - Jigmeling Line	110.26	+	
-	-	132kV Gelephu - Salakati Line	21.79	+			
Total	585.61	Auxiliary Consumption & Transformation Losses at Generator end	-0.186%				
3	336MW CHP	Unit- I	91.48	220kV CHP - Birpara Line- I	94.76	+	
		Unit- II	90.92	220kV CHP - Birpara Line- II	94.47	+	
		Unit- III	91.67	220kV CHP - Malbase Line- III	137.70	+	
		Unit- IV	91.49	220kV CHP - Semtokha Line- IV	56.69	+	
		-	-	220kV Malbase - Birpara Line	47.51	+	
		-	-	66kV CHP - Chumdo Line	6.86	+	
		-	-	66kV CHP - Gedu Line	5.77	+	
		-	-	3x3MVA, 66/11kV TFR	0.89	+	
		Total	365.56	Auxiliary Consumption & Transformation Losses at Generator end	-8.639%		
4	24MW BHP (U/S)	Unit- I	20.70	220kV BHP - Semtokha Line	50.80	+	
		Unit- II	21.10	66kV BHP - Lobeysa Line	28.10	+	
		Total	41.80	220kV BHP - Tsirang Line	-11.86	-	
5	40MW BHP (L/S)	Unit- I	12.20	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	12.60	30MVA ICT, 220/66kV (HV)	2.82	+	
		Total	24.80	Auxiliary Consumption & Transformation Losses at Generator end	-1.997%		
6	126MW DHP	Unit-I	63.64	220kV DHP - Tsirang Line	126.35	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.19	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.50	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	126.83	Auxiliary Consumption & Transformation Losses at Generator end	0.142%		
7	60MW KHP	Unit- I	16.22	132kV KHP - Nangkhoh Line	38.32	+	
		Unit-II	15.96	132kV KHP - Kilikhar Line	22.98	+	
		Unit- III	14.56	5MVA, 132/11kV TFR	0.26	+	
		Unit- IV	15.11	132kV Motanga - Rangia Line	33.55	+	
		Total	61.85	Auxiliary Consumption & Transformation Losses at Generator end	0.469%		

Note: Generation-Load Summary (MW) for August 28, 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	1,674.61	308.18	333.27	1,256.17	-25.09
2	Eastern Grid	647.46	67.71	68.51	690.01	-0.80
	Total	2,322.07	375.89	401.78	1,946.18	-25.89

Note: Generation-Load Summary for August 28, 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	1,351.15	239.20	219.86	1,051.84	19.34
2	Eastern Grid	448.58	54.39	51.53	454.30	2.86
	Total	1,799.73	293.59	271.39	1,506.14	22.20

NOTE-BHP & MHP 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.