

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date: August 21, 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	186.24	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	185.80	400kV THP - Siliguri Line - II	354.11	+	
		Unit- III	185.35	400kV THP - Siliguri Line- IV	338.10	+	
		Unit- IV	184.47	400kV THP - Malbase Line - III	412.17	+	
		Unit- V	185.79	400kV Malbase - Siliguri Line	314.24	+	
		Unit- VI	185.46	-	-	-	
		Total	1,113.11	Auxiliary Consumption & Transformation Losses at Gen. end	0.784%		
2	720MW MHP	Unit-I	197.85	400kV MHP - Jigmeling Line - I	381.10	+	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	194.49	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	186.68	400kV MHP - Jigmeling Line - III	378.90	+	
		Unit-IV	197.21	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)	-14.60	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	192.72	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	290.92	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	290.92	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	42.60	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	42.80	+	
		-	-	220kV Tsirang - Jigmeling Line	102.20	+	
-	-	132kV Gelephu - Salakati Line	26.91	+			
		Total	776.23	Auxiliary Consumption & Transformation Losses at Gen. end	2.091%		
3	336MW CHP	Unit- I	91.66	220kV CHP - Birpara Line- I	103.27	+	
		Unit- II	90.99	220kV CHP - Birpara Line- II	103.29	+	
		Unit- III	91.40	220kV CHP - Malbase Line- III	121.24	+	
		Unit- IV	91.36	220kV CHP - Semtokha Line- IV	17.55	+	
		-	-	220kV Malbase - Birpara Line	74.95	+	
		-	-	66kV CHP - Chumdo Line	11.12	+	
		-	-	66kV CHP - Gedu Line	5.76	+	
		-	-	3x3MVA, 66/11kV TFR	1.31	+	
		Total	365.41	Auxiliary Consumption & Transformation Losses at Gen. end	0.512%		
4	24MW BHP (U/S)	Unit- I	20.70	220kV BHP - Semtokha Line	55.61	+	
		Unit- II	21.10	66kV BHP - Lobeyssa Line	28.50	+	
		Total	41.80	220kV BHP - Tsirang Line	-20.18	-	
5	40MW BHP (L/S)	Unit- I	12.10	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	12.30	30MVA ICT, 220/66kV (HV)	6.07	+	
		Total	24.40	Auxiliary Consumption & Transformation Losses at Gen. end	2.085%		
6	126MW DHP	Unit-I	63.55	220kV DHP - Tsirang Line	126.15	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.13	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.90	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	126.68	Auxiliary Consumption & Transformation Losses at Gen. end	0.182%		
7	60MW KHP	Unit- I	16.48	132kV KHP - Nangkhoh Line	34.94	+	
		Unit-II	16.57	132kV KHP - Kilikhar Line	28.37	+	
		Unit- III	15.28	5MVA, 132/11kV TFR	0.32	+	
		Unit- IV	16.10	132kV Motanga - Rangia Line	45.59	+	
		Total	64.43	Auxiliary Consumption & Transformation Losses at Gen. end	1.242%		

Note: Generation-Load Summary (MW) for August 21, 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	1,671.40	281.24	270.93	1,287.96	10.31
2	Eastern Grid	840.66	95.80	78.77	847.06	17.03
	Total	2,512.06	377.04	349.70	2,135.02	27.34

Note: Generation-Load Summary for August 21, 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	1,678.69	209.56	191.42	1,372.59	18.14
2	Eastern Grid	717.51	62.72	61.67	751.59	1.05
	Total	2,396.20	272.28	253.09	2,124.18	19.19

NOTE-BHP, 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:	August 22, 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	186.09	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	184.44	400kV THP - Siliguri Line - II	362.71	+	
		Unit- III	185.42	400kV THP - Siliguri Line- IV	346.10	+	
		Unit- IV	185.14	400kV THP - Malbase Line - III	394.15	+	
		Unit- V	185.30	400kV Malbase - Siliguri Line	329.86	+	
		Unit- VI	185.40	-	-	-	
		Total	1,111.79	Auxiliary Consumption & Transformation Losses at Generator end	0.794%		
2	720MW MHP	Unit-I	197.62	400kV MHP - Jigmeling Line - I	389.90	+	MHP Unit III under Shutdown for Final Stability Inspection. 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	193.50	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	197.58	400kV MHP - Jigmeling Line - III	391.50	+	
		Unit-IV	196.14	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)	-48.90	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	202.90	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	307.72	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	307.72	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	26.30	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	26.40	+	
		-	-	220kV Tsirang - Jigmeling Line	103.19	+	
-	-	132kV Gelephu - Salakati Line	24.73	+			
Total	784.84	Auxiliary Consumption & Transformation Losses at Generator end	0.438%				
3	336MW CHP	Unit- I	91.52	220kV CHP - Birpara Line- I	99.49	+	
		Unit- II	90.97	220kV CHP - Birpara Line- II	99.72	+	
		Unit- III	91.28	220kV CHP - Malbase Line- III	139.33	+	
		Unit- IV	91.14	220kV CHP - Semtokha Line- IV	9.72	+	
		-	-	220kV Malbase - Birpara Line	54.95	+	
		-	-	66kV CHP - Chumdo Line	7.75	+	
		-	-	66kV CHP - Gedu Line	6.12	+	
		-	-	3x3MVA, 66/11kV TFR	0.96	+	
		Total	364.91	Auxiliary Consumption & Transformation Losses at Generator end	0.499%		
4	24MW BHP (U/S)	Unit- I	12.10	220kV BHP - Semtokha Line	56.10	+	
		Unit- II	12.30	66kV BHP - Lobeysa Line	27.70	+	
		Total	24.40	220kV BHP - Tsirang Line	-19.11	-	
5	40MW BHP (L/S)	Unit- I	20.60	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	4.70	+	
		Total	41.70	Auxiliary Consumption & Transformation Losses at Generator end	0.772%		
6	126MW DHP	Unit-I	63.59	220kV DHP - Tsirang Line	126.13	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.17	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.20	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	126.76	Auxiliary Consumption & Transformation Losses at Generator end	0.260%		
7	60MW KHP	Unit- I	16.59	132kV KHP - Nangkhoh Line	40.14	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	22.42	+	
		Unit- III	14.84	5MVA, 132/11kV TFR	0.29	+	
		Unit- IV	15.51	132kV Motanga - Rangia Line	30.81	+	
		Total	63.44	Auxiliary Consumption & Transformation Losses at Generator end	0.932%		

Note: Generation-Load Summary (MW) for August 22, 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	1,669.56	273.54	263.25	1,292.83	10.29
2	Eastern Grid	848.28	77.59	73.56	873.88	4.03
	Total	2,517.84	351.13	336.81	2,166.71	14.32

Note: Generation-Load Summary for August 22, 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	1,679.37	193.89	175.25	1,402.33	18.64
2	Eastern Grid	848.49	44.89	43.70	886.75	1.19
	Total	2,527.86	238.78	218.95	2,289.08	19.83

NOTE-BHP, 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.
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