

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	August 20, 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	185.61	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	183.66	400kV THP - Siliguri Line - II	349.06	+	
		Unit- III	184.80	400kV THP - Siliguri Line- IV	333.68	+	
		Unit- IV	171.80	400kV THP - Malbase Line - III	405.75	+	
		Unit- V	185.11	400kV Malbase - Siliguri Line	311.91	+	
		Unit- VI	185.85	-	-	-	
		Total	1,096.83	Auxiliary Consumption & Transformation Losses at Gen. end	0.760%		
2	720MW MHP	Unit-I	197.79	400kV MHP - Jigmeling Line - I	381.83	+	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	194.31	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	180.65	400kV MHP - Jigmeling Line - III	384.24	+	
		Unit-IV	197.41	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)	-21.50	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	192.70	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	292.35	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	292.30	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	37.60	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	37.50	+	
		-	-	220kV Tsirang - Jigmeling Line	99.30	+	
-	-	132kV Gelephu - Salakati Line	28.96	+			
Total	770.16	Auxiliary Consumption & Transformation Losses at Gen. end	0.531%				
3	336MW CHP	Unit- I	91.53	220kV CHP - Birpara Line- I	103.44	+	
		Unit- II	91.11	220kV CHP - Birpara Line- II	102.98	+	
		Unit- III	91.85	220kV CHP - Malbase Line- III	125.85	+	
		Unit- IV	91.39	220kV CHP - Semtokha Line- IV	15.62	+	
		-	-	220kV Malbase - Birpara Line	71.26	+	
		-	-	66kV CHP - Chumdo Line	10.47	+	
		-	-	66kV CHP - Gedu Line	5.07	+	
		-	-	3x3MVA, 66/11kV TFR	1.27	+	
		Total	365.88	Auxiliary Consumption & Transformation Losses at Gen. end	0.323%		
4	24MW BHP (U/S)	Unit- I	20.70	220kV BHP - Semtokha Line	57.40	+	
		Unit- II	21.10	66kV BHP - Lobeysa Line	29.50	+	
		Total	41.80	220kV BHP - Tsirang Line	-21.71	-	
5	40MW BHP (L/S)	Unit- I	12.10	5MVA, 66/11kV TFR	0.95	+	
		Unit- II	12.30	30MVA ICT, 220/66kV (HV)	6.18	+	
		Total	24.40	Auxiliary Consumption & Transformation Losses at Gen. end	0.091%		
6	126MW DHP	Unit-I	63.62	220kV DHP - Tsirang Line	126.25	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.23	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	2.00	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	126.85	Auxiliary Consumption & Transformation Losses at Gen. end	0.236%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhoh Line	36.49	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	27.62	+	
		Unit- III	15.67	5MVA, 132/11kV TFR	0.32	+	
		Unit- IV	16.38	132kV Motanga - Rangia Line	44.45	+	
		Total	65.05	Auxiliary Consumption & Transformation Losses at Gen. end	0.953%		

Note: Generation-Load Summary (MW) for August 20, 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	1,655.76	284.13	276.25	1,272.33	7.88
2	Eastern Grid	835.21	83.75	79.04	850.76	4.71
Total		2,490.97	367.88	355.29	2,123.09	12.59

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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	1,678.72	228.03	210.03	1,355.88	18.00
2	Eastern Grid	839.78	58.27	56.41	876.32	1.86
Total		2,518.50	286.30	266.44	2,232.20	19.86

NOTE-BHP, KHP and MHPA 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.

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	August 21, 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	185.79	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri line I under breakdown.
		Unit- II	184.42	400kV THP - Siliguri Line - II	358.67	+	
		Unit- III	184.55	400kV THP - Siliguri Line- IV	341.81	+	
		Unit- IV	185.49	400kV THP - Malbase Line - III	400.18	+	
		Unit- V	186.29	400kV Malbase - Siliguri Line	323.10	+	
		Unit- VI	184.73	-	-	-	
		Total	1,111.27	Auxiliary Consumption & Transformation Losses at Generator end	0.955%		
2	720MW MHP	Unit-I	197.94	400kV MHP - Jigmeling Line - I	293.97	+	MHP Unit III under Shutdown for Final Stability Inspection. 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	197.86	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.51	+	
		Unit-IV	197.33	400kV MHP - Jigmeling Line - IV	0.00		
		-	-	132kV MHP - Yurmoo Line - I	0.00		
		-	-	132kV MHP - Yurmoo Line - II	0.00		
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	-62.20	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	159.26	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	240.91	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	240.91	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	24.90	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	25.00	+	
		-	-	220kV Tsirang - Jigmeling Line	112.75	+	
-	-	132kV Gelephu - Salakati Line	22.77	+			
Total	593.13	Auxiliary Consumption & Transformation Losses at Generator end	0.615%				
3	336MW CHP	Unit- I	91.65	220kV CHP - Birpara Line- I	95.63	+	
		Unit- II	90.96	220kV CHP - Birpara Line- II	95.39	+	
		Unit- III	91.79	220kV CHP - Malbase Line- III	140.69	+	
		Unit- IV	91.45	220kV CHP - Semtokha Line- IV	18.30	+	
		-	-	220kV Malbase - Birpara Line	46.14	+	
		-	-	66kV CHP - Chumdo Line	7.81	+	
		-	-	66kV CHP - Gedu Line	5.50	+	
		-	-	3x3MVA, 66/11kV TFR	1.00	+	
		Total	365.85	Auxiliary Consumption & Transformation Losses at Generator end	0.418%		
4	24MW BHP (U/S)	Unit- I	12.10	220kV BHP - Semtokha Line	46.75	+	
		Unit- II	12.30	66kV BHP - Lobeysa Line	27.50	+	
		Total	24.40	220kV BHP - Tsirang Line	-9.53	-	
5	40MW BHP (L/S)	Unit- I	20.60	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	4.33	+	
		Total	41.70	Auxiliary Consumption & Transformation Losses at Generator end	0.726%		
6	126MW DHP	Unit-I	63.63	220kV DHP - Tsirang Line	126.19	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.09	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.90	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	126.72	Auxiliary Consumption & Transformation Losses at Generator end	0.182%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhoh Line	39.77	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	23.63	+	
		Unit- III	15.44	5MVA, 132/11kV TFR	0.27	+	
		Unit- IV	15.98	132kV Motanga - Rangia Line	37.01	+	
		Total	64.42	Auxiliary Consumption & Transformation Losses at Generator end	1.163%		

Note: Generation-Load Summary (MW) for August 21, 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	1,669.94	296.45	285.50	1,260.74	10.95
2	Eastern Grid	657.55	69.44	65.04	700.86	4.40
	Total	2,327.49	365.89	350.54	1,961.60	15.35

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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	1,677.54	213.00	195.65	1,381.39	17.35
2	Eastern Grid	766.51	45.21	43.83	804.45	1.38
	Total	2,444.05	258.21	239.48	2,185.84	18.73

NOTE-BHP, KHP and MHPA data collected from site

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- 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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