

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date: July 30, 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	167.51	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under maintenance.
		Unit- II	167.43	400kV THP - Siliguri Line - II	319.42	+	
		Unit- III	166.72	400kV THP - Siliguri Line- IV	302.77	+	
		Unit- IV	169.14	400kV THP - Malbase Line - III	375.46	+	
		Unit- V	166.64	400kV Malbase - Siliguri Line	282.27	+	
		Unit- VI	168.39	-	-	-	
		Total	1,005.83	Auxiliary Consumption & Transformation Losses at Gen. end	0.813%		
2	720MW MHP	Unit-I	197.86	400kV MHP - Jigmeling Line - I	294.11	+	Unit-III under Restoration . 400kV MHP-JLG Line II & IV on standby.132kV MHP_Yurmo line I & II not in service.400kV JLG_ALI Line II(Interim) under shutdown.
		Unit-II	197.85	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.86	+	
		Unit-IV	197.80	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)	-36.30	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	155.10	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	231.50	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	231.50	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	33.40	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	33.50	+	
		-	-	220kV Tsirang - Jigmeling Line	105.47	+	
-	-	132kV Gelephu - Salakati Line	23.98	+			
Total	593.51	Auxiliary Consumption & Transformation Losses at Gen. end	0.596%				
3	336MW CHP	Unit- I	92.10	220kV CHP - Birpara Line- I	101.12	+	
		Unit- II	90.47	220kV CHP - Birpara Line- II	101.00	+	
		Unit- III	92.35	220kV CHP - Malbase Line- III	139.44	+	
		Unit- IV	92.16	220kV CHP - Semtokha Line- IV	6.58	+	
		-	-	220kV Malbase - Birpara Line	56.78	+	
		-	-	66kV CHP - Chumdo Line	8.65	+	
		-	-	66kV CHP - Gedu Line	5.68	+	
		-	-	3x3MVA, 66/11kV TFR	1.20	+	
		Total	367.08	Auxiliary Consumption & Transformation Losses at Gen. end	0.929%		
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	54.56	+	
		Unit- II	12.20	66kV BHP - Lobeysa Line	24.80	+	
		Total	24.50	220kV BHP - Tsirang Line	-13.96	-	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	2.80	+	
		Total	41.50	Auxiliary Consumption & Transformation Losses at Gen. end	-0.455%		
6	126MW DHP	Unit-I	63.39	220kV DHP - Tsirang Line	123.93	+	220kV DHP_Dagapela Line on standby.
		Unit-II	61.07	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.70	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	124.46	Auxiliary Consumption & Transformation Losses at Gen. end	0.185%		
7	60MW KHP	Unit- I	16.53	132kV KHP - Nangkhon Line	37.62	+	
		Unit-II	16.55	132kV KHP - Kilikhar Line	27.72	+	
		Unit- III	16.29	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	16.60	132kV Motanga - Rangia Line	49.93	+	
		Total	65.97	Auxiliary Consumption & Transformation Losses at Gen. end	0.349%		

Note: Generation-Load Summary (MW) for July 30, 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	1,563.37	294.54	284.72	1,163.36	9.82
2	Eastern Grid	659.48	72.94	69.17	692.01	3.77
	Total	2,222.85	367.48	353.89	1,855.37	13.59

Note: Generation-Load Summary for July 30, 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	1,680.19	210.62	195.49	1,371.07	15.13
2	Eastern Grid	660.15	52.33	48.06	706.32	4.27
	Total	2,340.34	262.95	243.55	2,077.39	19.40

NOTE-BHP, JLG 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:	July 31, 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	168.54	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under maintenance.
		Unit- II	165.87	400kV THP - Siliguri Line - II	321.82	+	
		Unit- III	167.43	400kV THP - Siliguri Line- IV	308.19	+	
		Unit- IV	167.85	400kV THP - Malbase Line - III	368.49	+	
		Unit- V	166.39	400kV Malbase - Siliguri Line	290.47	+	
		Unit- VI	168.00	-	-	-	
		Total	1,004.08	Auxiliary Consumption & Transformation Losses at Generator end	0.556%		
2	720MW MHP	Unit-I	197.83	400kV MHP - Jigmeling Line - I	294.47	+	Unit-III under Restoration . 400kV MHP-JLG Line II & IV on standby.132kV MHP_Yurmo line I & II not in service.400kV JLG_ALI Line II(Interim) under shutdown.132kV GEL-Salakati line under emergency shutdown.
		Unit-II	197.68	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.74	+	
		Unit-IV	197.74	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)	-64.60	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	161.60	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	242.80	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	242.80	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	16.00	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	16.00	+	
		-	-	220kV Tsirang - Jigmeling Line	100.03	+	
-	-	132kV Gelephu - Salakati Line	0.00	+			
Total	593.25	Auxiliary Consumption & Transformation Losses at Generator end	0.512%				
3	336MW CHP	Unit- I	92.10	220kV CHP - Birpara Line- I	103.61	+	
		Unit- II	90.47	220kV CHP - Birpara Line- II	103.55	+	
		Unit- III	92.35	220kV CHP - Malbase Line- III	148.27	+	
		Unit- IV	92.16	220kV CHP - Semtokha Line- IV	-3.52	-	
		-	-	220kV Malbase - Birpara Line	53.88	+	
		-	-	66kV CHP - Chumdo Line	5.76	+	
		-	-	66kV CHP - Gedu Line	6.21	+	
		-	-	3x3MVA, 66/11kV TFR	0.73	+	
		Total	367.08	Auxiliary Consumption & Transformation Losses at Generator end	0.673%		
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	56.20	+	
		Unit- II	12.20	66kV BHP - Lobeysa Line	26.40	+	
		Total	24.50	220kV BHP - Tsirang Line	-16.35	-	
5	40MW BHP (L/S)	Unit- I	20.60	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	1.83	+	
		Total	41.70	Auxiliary Consumption & Transformation Losses at Generator end	-1.420%		
6	126MW DHP	Unit-I	60.95	220kV DHP - Tsirang Line	120.99	+	220kV DHP_Dagapela Line on standby.
		Unit-II	60.51	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.10	+	
		-	-	5MVA, 220/33kV TFR	0.40		
		Total	121.46	Auxiliary Consumption & Transformation Losses at Generator end	0.058%		
7	60MW KHP	Unit- I	16.53	132kV KHP - Nangkhoh Line	40.72	+	
		Unit-II	16.54	132kV KHP - Kilikhar Line	24.18	+	
		Unit- III	16.23	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	16.59	132kV Motanga - Rangia Line	44.10	+	
		Total	65.89	Auxiliary Consumption & Transformation Losses at Generator end	1.047%		

Note: Generation-Load Summary (MW) for July 31, 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	1,558.82	277.27	271.19	1,181.52	6.08
2	Eastern Grid	659.14	67.87	64.14	691.30	3.73
	Total	2,217.96	345.14	335.33	1,872.82	9.81

Note: Generation-Load Summary for July 31, 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	1,679.01	222.40	206.26	1,370.81	16.14
2	Eastern Grid	659.75	46.29	42.23	699.26	4.06
	Total	2,338.76	268.69	248.49	2,070.07	20.20

NOTE-BHP 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.
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