

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	July 16, 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	184.85	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under breakdown.
		Unit- II	185.80	400kV THP - Siliguri Line - II	360.17	+	
		Unit- III	185.65	400kV THP - Siliguri Line- IV	343.85	+	
		Unit- IV	185.78	400kV THP - Malbase Line - III	404.53	+	
		Unit- V	186.27	400kV Malbase - Siliguri Line	322.54	+	
		Unit- VI	185.57	-	-	-	
		Total	1,113.92	Auxiliary Consumption & Transformation Losses at Gen. end	0.482%		
2	720MW MHP	Unit-I	197.81	400kV MHP - Jigmeling Line - I	294.10	+	Unit-III under Restoration 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II(Interim) under shutdown.
		Unit-II	197.99	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.66	+	
		Unit-IV	197.38	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)	-29.10	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	158.20	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	228.80	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	228.80	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	36.80	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	36.90	+	
		-	-	220kV Tsirang - Jigmeling Line	104.89	+	
-	-	132kV Gelephu - Salakati Line	22.46	+			
Total	593.18	Auxiliary Consumption & Transformation Losses at Gen. end	0.577%				
3	336MW CHP	Unit- I	91.65	220kV CHP - Birpara Line- I	103.10	+	
		Unit- II	91.07	220kV CHP - Birpara Line- II	103.56	+	
		Unit- III	91.32	220kV CHP - Malbase Line- III	133.06	+	
		Unit- IV	91.24	220kV CHP - Semtokha Line- IV	9.23	+	
		-	-	220kV Malbase - Birpara Line	65.34	+	
		-	-	66kV CHP - Chumdo Line	7.99	+	
		-	-	66kV CHP - Gedu Line	5.73	+	
		-	-	3x3MVA, 66/11kV TFR	1.10	+	
Total	365.28	Auxiliary Consumption & Transformation Losses at Gen. end	0.413%				
4	24MW BHP (U/S)	Unit- I	12.20	220kV BHP - Semtokha Line	38.28	+	
		Unit- II	12.10	66kV BHP - Lobeysa Line	23.10	+	
		Total	24.30	220kV BHP - Tsirang Line	4.03	+	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.95	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	-0.01	-	
		Total	41.50	Auxiliary Consumption & Transformation Losses at Gen. end	-0.851%		
6	126MW DHP	Unit-I	58.37	220kV DHP - Tsirang Line	115.87	+	220kV DHP_Dagapela Line on standby.
		Unit-II	57.99	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.80	+	
		-	-	5MVA, 220/33kV TFR	0.20	+	
		Total	116.36	Auxiliary Consumption & Transformation Losses at Gen. end	0.249%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Line	36.03	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	28.31	+	
		Unit- III	16.18	5MVA, 132/11kV TFR	0.26	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	44.71	+	
		Total	65.68	Auxiliary Consumption & Transformation Losses at Gen. end	1.643%		

Note: Generation-Load Summary (MW) for July 16, 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	1,661.36	257.91	253.10	1,298.56	4.81
2	Eastern Grid	658.86	80.78	76.28	682.97	4.50
	Total	2,320.22	338.69	329.38	1,981.53	9.31

Note: Generation-Load Summary for July 16, 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	1,673.20	230.55	213.62	1,367.93	16.93
2	Eastern Grid	857.42	45.73	43.49	886.41	2.24
	Total	2,530.62	276.28	257.11	2,254.34	19.17

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:	July 17, 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	185.67	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under breakdown.
		Unit- II	184.79	400kV THP - Siliguri Line - II	362.97	+	
		Unit- III	186.20	400kV THP - Siliguri Line- IV	346.44	+	
		Unit- IV	185.74	400kV THP - Malbase Line - III	397.88	+	
		Unit- V	185.23	400kV Malbase - Siliguri Line	328.63	+	
		Unit- VI	185.83	-	-	-	
		Total	1,113.46	Auxiliary Consumption & Transformation Losses at Generator end	0.554%		
2	720MW MHP	Unit-I	197.81	400kV MHP - Jigmeling Line - I	294.50	+	Unit-III on Restoration. 400kV MHP-JLG Line II & IV on standby. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II (Interim) under standby.
		Unit-II	197.80	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.79	+	
		Unit-IV	197.94	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)	-63.70	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	161.60	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	241.50	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	241.50	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	23.50	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	23.50	+	
		-	-	220kV Tsirang - Jigmeling Line	112.60	+	
-	-	132kV Gelephu - Salakati Line	20.99	+			
Total	593.55	Auxiliary Consumption & Transformation Losses at Generator end	0.549%				
3	336MW CHP	Unit- I	91.61	220kV CHP - Birpara Line- I	100.19	+	
		Unit- II	90.95	220kV CHP - Birpara Line- II	99.75	+	
		Unit- III	91.19	220kV CHP - Malbase Line- III	144.84	+	
		Unit- IV	91.82	220kV CHP - Semtokha Line- IV	6.51	+	
		-	-	220kV Malbase - Birpara Line	51.16	+	
		-	-	66kV CHP - Chumdo Line	6.39	+	
		-	-	66kV CHP - Gedu Line	5.25	+	
		-	-	3x3MVA, 66/11kV TFR	0.70	+	
Total	365.57	Auxiliary Consumption & Transformation Losses at Generator end	0.531%				
4	24MW BHP (U/S)	Unit- I	12.20	220kV BHP - Semtokha Line	45.00	+	
		Unit- II	12.10	66kV BHP - Lobeysa Line	22.87	+	
		Total	24.30	220kV BHP - Tsirang Line	-3.10	-	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.88	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	0.55	+	
		Total	41.50	Auxiliary Consumption & Transformation Losses at Generator end	0.228%		
6	126MW DHP	Unit-I	58.35	220kV DHP - Tsirang Line	118.89	+	220kV DHP_Dagapela Line on standby.
		Unit-II	61.04	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.10	+	
		-	-	5MVA, 220/33kV TFR	0.28	+	
		Total	119.39	Auxiliary Consumption & Transformation Losses at Generator end	0.184%		
7	60MW KHP	Unit- I	16.57	132kV KHP - Nangkhon Line	40.09	+	
		Unit-II	16.58	132kV KHP - Kilikhar Line	23.98	+	
		Unit- III	15.42	5MVA, 132/11kV TFR	0.27	+	
		Unit- IV	16.28	132kV Motanga - Rangia Line	38.15	+	
		Total	64.85	Auxiliary Consumption & Transformation Losses at Generator end	0.782%		

Note: Generation-Load Summary (MW) for July 17, 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	1,664.22	262.48	255.10	1,289.14	7.38
2	Eastern Grid	658.40	67.26	63.49	703.74	3.77
	Total	2,322.62	329.74	318.59	1,992.88	11.15

Note: Generation-Load Summary for July 17, 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	1,678.62	222.26	207.40	1,360.98	14.86
2	Eastern Grid	857.18	66.55	62.88	886.01	3.67
	Total	2,535.80	288.81	270.28	2,246.99	18.53

NOTE- BHP & MHEP 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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