

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	June 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	136.61	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under maintenance.
		Unit- II	118.06	400kV THP - Siliguri Line - II	273.29	+	
		Unit- III	137.42	400kV THP - Siliguri Line- IV	262.51	+	
		Unit- IV	140.61	400kV THP - Malbase Line - III	314.29	+	
		Unit- V	137.60	400kV Malbase - Siliguri Line	246.29	+	
		Unit- VI	185.03	-	-	-	
		Total	855.33	Auxiliary Consumption & Transformation Losses at Gen. end	0.613%		
2	720MW MHP	Unit-I	185.01	400kV MHP - Jigmeling Line - I	282.18	+	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 I(Interim) under shutdown
		Unit-II	185.00	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	283.27	+	
		Unit-IV	197.56	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)	4.40	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	138.90	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	208.70	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	208.70	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	28.50	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	28.50	+	
		-	-	220kV Tsirang - Jigmeling Line	64.30	+	
-	-	132kV Gelephu - Salakati Line	25.37	+			
Total	567.57	Auxiliary Consumption & Transformation Losses at Gen. end	0.374%				
3	336MW CHP	Unit- I	91.61	220kV CHP - Birpara Line- I	90.31	+	
		Unit- II	91.15	220kV CHP - Birpara Line- II	89.99	+	
		Unit- III	90.88	220kV CHP - Malbase Line- III	133.59	+	
		Unit- IV	91.33	220kV CHP - Semtokha Line- IV	34.02	+	
		-	-	220kV Malbase - Birpara Line	42.97	+	
		-	-	66kV CHP - Chumdo Line	9.58	+	
		-	-	66kV CHP - Gedu Line	4.70	+	
		-	-	3x3MVA, 66/11kV TFR	1.37	+	
		Total	364.97	Auxiliary Consumption & Transformation Losses at Gen. end	0.386%		
4	24MW BHP (U/S)	Unit- I	8.60	220kV BHP - Semtokha Line	29.13	+	30MVA ICT(220/66kV) under shutdown.
		Unit- II	8.50	66kV BHP - Lobeysa Line	16.40	+	
		Total	17.10	220kV BHP - Tsirang Line	0.52	-	
5	40MW BHP (L/S)	Unit- I	15.10	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	15.10	30MVA ICT, 220/66kV (HV)	0.00		
		Total	30.20	Auxiliary Consumption & Transformation Losses at Gen. end	0.761%		
6	126MW DHP	Unit-I	40.33	220kV DHP - Tsirang Line	64.94	+	220kV DHP_Dagapela Line on standby.
		Unit-II	25.99	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.70	+	
		-	-	5MVA, 220/33kV TFR	1.30	+	
		Total	66.32	Auxiliary Consumption & Transformation Losses at Gen. end	0.121%		
7	60MW KHP	Unit- I	16.51	132kV KHP - Nangkor Line	38.95	+	
		Unit-II	16.51	132kV KHP - Kilikhar Line	26.16	+	
		Unit- III	16.52	5MVA, 132/11kV TFR	0.38	+	
		Unit- IV	16.59	132kV Motanga - Rangia Line	43.31	+	
		Total	66.13	Auxiliary Consumption & Transformation Losses at Gen. end	0.971%		

Note: Generation-Load Summary (MW) for June 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	1,333.92	264.26	258.87	1,005.36	5.39
2	Eastern Grid	633.70	73.02	70.26	624.98	2.76
Total		1,967.62	337.28	329.13	1,630.34	8.15

Note: Generation-Load Summary for June 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	1,564.27	220.49	205.60	1,264.06	14.89
2	Eastern Grid	821.14	62.97	58.83	837.89	4.14
Total		2,385.41	283.46	264.43	2,101.95	19.03

NOTE-BHP, KHP and MHEP 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:	June 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	137.12	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under maintenance.
		Unit- II	119.09	400kV THP - Siliguri Line - II	248.79	+	
		Unit- III	140.03	400kV THP - Siliguri Line- IV	237.18	+	
		Unit- IV	139.16	400kV THP - Malbase Line - III	272.95	+	
		Unit- V	138.87	400kV Malbase - Siliguri Line	225.37	+	
		Unit- VI	90.29	-	-	-	
		Total	764.56	Auxiliary Consumption & Transformation Losses at Generator end	0.738%		
2	720MW MHP	Unit-I	175.86	400kV MHP - Jigmeling Line - I	271.97	+	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 I (Interim) under shutdown.
		Unit-II	175.21	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	273.46	+	
		Unit-IV	197.26	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)	-28.70	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	140.30	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	213.30	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	213.30	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	22.30	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	22.40	+	
		-	-	220kV Tsirang - Jigmeling Line	75.30	+	
-	-	132kV Gelephu - Salakati Line	20.08	+			
Total	548.33	Auxiliary Consumption & Transformation Losses at Generator end	0.529%				
3	336MW CHP	Unit- I	91.73	220kV CHP - Birpara Line- I	89.87	+	
		Unit- II	91.37	220kV CHP - Birpara Line- II	89.58	+	
		Unit- III	91.48	220kV CHP - Malbase Line- III	147.68	+	
		Unit- IV	91.44	220kV CHP - Semtokha Line- IV	26.72	+	
		-	-	220kV Malbase - Birpara Line	31.71	+	
		-	-	66kV CHP - Chumdo Line	5.97	+	
		-	-	66kV CHP - Gedu Line	5.05	+	
		-	-	3x3MVA, 66/11kV TFR	0.78	+	
Total	366.02	Auxiliary Consumption & Transformation Losses at Generator end	0.101%				
4	24MW BHP (U/S)	Unit- I	7.60	220kV BHP - Semtokha Line	29.00	+	30MVA ICT(220/66kV) under shutdown.
		Unit- II	7.70	66kV BHP - Lobeysa Line	15.10	+	
		Total	15.30	220kV BHP - Tsirang Line	-2.32	-	
5	40MW BHP (L/S)	Unit- I	13.50	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	13.70	30MVA ICT, 220/66kV (HV)	0.00		
		Total	27.20	Auxiliary Consumption & Transformation Losses at Generator end	-0.400%		
6	126MW DHP	Unit-I	50.40	220kV DHP - Tsirang Line	80.02	+	220kV DHP_Dagapela Line on standby.
		Unit-II	30.02	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.00	+	
		-	-	5MVA, 220/33kV TFR	0.20	+	
		Total	80.42	Auxiliary Consumption & Transformation Losses at Generator end	0.249%		
7	60MW KHP	Unit- I	16.49	132kV KHP - Nangkor Line	41.38	+	
		Unit-II	16.47	132kV KHP - Kilikhar Line	23.46	+	
		Unit- III	16.45	5MVA, 132/11kV TFR	0.35	+	
		Unit- IV	16.54	132kV Motanga - Rangia Line	44.14	+	
		Total	65.95	Auxiliary Consumption & Transformation Losses at Generator end	1.152%		

Note: Generation-Load Summary (MW) for June 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	1,253.50	255.70	250.66	922.50	5.04
2	Eastern Grid	614.28	58.46	54.80	631.12	3.66
	Total	1,867.78	314.16	305.46	1,553.62	8.70

Note: Generation-Load Summary for June 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	1,588.79	204.30	186.03	1,305.08	18.27
2	Eastern Grid	820.54	56.56	52.20	843.39	4.36
	Total	2,409.33	260.86	238.23	2,148.47	22.63

NOTE-BHP and 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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