

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	July 13, 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	186.12	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under breakdown.
		Unit- II	186.16	400kV THP - Siliguri Line - II	353.78	+	
		Unit- III	184.04	400kV THP - Siliguri Line- IV	338.02	+	
		Unit- IV	185.15	400kV THP - Malbase Line - III	413.12	+	
		Unit- V	185.07	400kV Malbase - Siliguri Line	315.64	+	
		Unit- VI	185.50	-	-	-	
		Total	1,112.04	Auxiliary Consumption & Transformation Losses at Gen. end	0.640%		
2	720MW MHP	Unit-I	197.82	400kV MHP - Jigmeling Line - I	293.50	+	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	196.63	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.59	+	
		Unit-IV	197.31	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)	-46.70	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	157.40	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	234.40	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	234.40	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	36.20	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	36.20	+	
		-	-	220kV Tsirang - Jigmeling Line	121.72	+	
-	-	132kV Gelephu - Salakati Line	27.46	+			
Total	591.76	Auxiliary Consumption & Transformation Losses at Gen. end	0.451%				
3	336MW CHP	Unit- I	91.71	220kV CHP - Birpara Line- I	103.90	+	
		Unit- II	91.23	220kV CHP - Birpara Line- II	103.34	+	
		Unit- III	91.74	220kV CHP - Malbase Line- III	126.22	+	
		Unit- IV	91.97	220kV CHP - Semtokha Line- IV	16.79	+	
		-	-	220kV Malbase - Birpara Line	70.34	+	
		-	-	66kV CHP - Chumdo Line	8.59	+	
		-	-	66kV CHP - Gedu Line	5.11	+	
		-	-	3x3MVA, 66/11kV TFR	1.20	+	
		Total	366.65	Auxiliary Consumption & Transformation Losses at Gen. end	0.409%		
4	24MW BHP (U/S)	Unit- I	12.32	220kV BHP - Semtokha Line	39.15	+	30MVA ICT(220/66kV) under shutdown.
		Unit- II	12.10	66kV BHP - Lobeysa Line	22.80	+	
		Total	24.42	220kV BHP - Tsirang Line	2.21	+	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	0.00		
		Total	41.50	Auxiliary Consumption & Transformation Losses at Gen. end	1.320%		
6	126MW DHP	Unit-I	63.61	220kV DHP - Tsirang Line	123.67	+	220kV DHP_Dagapela Line on standby.
		Unit-II	60.52	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.80	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	124.13	Auxiliary Consumption & Transformation Losses at Gen. end	0.129%		
7	60MW KHP	Unit- I	16.61	132kV KHP - Nangkor Line	37.93	+	
		Unit-II	16.48	132kV KHP - Kilikhar Line	27.19	+	
		Unit- III	16.58	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	16.60	132kV Motanga - Rangia Line	52.09	+	
		Total	66.27	Auxiliary Consumption & Transformation Losses at Gen. end	1.132%		

Note: Generation-Load Summary (MW) for July 13, 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	1,668.74	262.00	254.15	1,285.02	7.85
2	Eastern Grid	658.03	74.00	70.58	705.75	3.42
Total		2,326.77	336.00	324.73	1,990.77	11.27

Note: Generation-Load Summary for July 13, 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	1,677.76	219.71	205.88	1,365.44	13.83
2	Eastern Grid	857.02	59.43	57.54	890.20	1.89
Total		2,534.78	279.14	263.42	2,255.64	15.72

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 14, 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	185.91	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under breakdown.
		Unit- II	185.90	400kV THP - Siliguri Line - II	357.55	+	
		Unit- III	185.96	400kV THP - Siliguri Line- IV	342.45	+	
		Unit- IV	185.58	400kV THP - Malbase Line - III	404.00	+	
		Unit- V	185.24	400kV Malbase - Siliguri Line	322.26	+	
		Unit- VI	185.61	-	-	-	
		Total	1,114.20	Auxiliary Consumption & Transformation Losses at Generator end	0.915%		
2	720MW MHP	Unit-I	197.73	400kV MHP - Jigmeling Line - I	293.69	+	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	196.53	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.17	+	
		Unit-IV	197.26	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)	-69.30	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	163.70	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	244.40	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	244.40	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	27.40	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	27.40	+	
		-	-	220kV Tsirang - Jigmeling Line	125.29	+	
-	-	132kV Gelephu - Salakati Line	25.91	+			
Total	591.52	Auxiliary Consumption & Transformation Losses at Generator end	0.450%				
3	336MW CHP	Unit- I	91.61	220kV CHP - Birpara Line- I	100.28	+	
		Unit- II	90.91	220kV CHP - Birpara Line- II	100.00	+	
		Unit- III	91.88	220kV CHP - Malbase Line- III	141.52	+	
		Unit- IV	92.02	220kV CHP - Semtokha Line- IV	9.16	+	
		-	-	220kV Malbase - Birpara Line	53.79	+	
		-	-	66kV CHP - Chumdo Line	6.36	+	
		-	-	66kV CHP - Gedu Line	4.99	+	
		-	-	3x3MVA, 66/11kV TFR	0.80	+	
		Total	366.42	Auxiliary Consumption & Transformation Losses at Generator end	0.903%		
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	38.83	+	30MVA ICT(220/66kV) under shutdown
		Unit- II	12.10	66kV BHP - Lobeysa Line	23.50	+	
		Total	24.40	220kV BHP - Tsirang Line	2.58	-	
5	40MW BHP (L/S)	Unit- I	20.60	5MVA, 66/11kV TFR	0.92	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	0.00		
		Total	41.60	Auxiliary Consumption & Transformation Losses at Generator end	0.258%		
6	126MW DHP	Unit-I	63.64	220kV DHP - Tsirang Line	126.32	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.07	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.00	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	126.71	Auxiliary Consumption & Transformation Losses at Generator end	0.071%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkor Line	41.42	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	24.05	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	44.81	+	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Generator end	0.348%		

Note: Generation-Load Summary (MW) for July 14, 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	1,673.33	271.71	258.94	1,276.33	12.77
2	Eastern Grid	657.52	59.59	56.70	723.22	2.89
Total		2,330.85	331.30	315.64	1,999.55	15.66

Note: Generation-Load Summary for July 14, 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	1,678.89	205.64	190.25	1,386.11	15.39
2	Eastern Grid	856.43	50.93	50.30	892.64	0.63
Total		2,535.32	256.57	240.55	2,278.75	16.02

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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