

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	July 10, 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	185.78	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under breakdown.
		Unit- II	183.94	400kV THP - Siliguri Line - II	358.33	+	
		Unit- III	185.13	400kV THP - Siliguri Line- IV	341.94	+	
		Unit- IV	185.14	400kV THP - Malbase Line - III	407.86	+	
		Unit- V	186.14	400kV Malbase - Siliguri Line	320.06	+	
		Unit- VI	185.09	-	-	-	
		Total	1,111.22	Auxiliary Consumption & Transformation Losses at Gen. end	0.278%		
2	720MW MHP	Unit-I	197.83	400kV MHP - Jigmeling Line - I	294.14	+	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	197.68	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.74	+	
		Unit-IV	197.69	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)	-61.50	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	161.90	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	+	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	241.00	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	241.00	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	22.40	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	22.40	+	
		-	-	220kV Tsirang - Jigmeling Line	110.30	+	
-	-	132kV Gelephu - Salakati Line	33.49	+			
Total	593.20	Auxiliary Consumption & Transformation Losses at Gen. end	0.560%				
3	336MW CHP	Unit- I	91.88	220kV CHP - Birpara Line- I	103.39	+	
		Unit- II	91.35	220kV CHP - Birpara Line- II	103.39	+	
		Unit- III	91.32	220kV CHP - Malbase Line- III	131.45	+	
		Unit- IV	92.23	220kV CHP - Semtokha Line- IV	11.88	+	
		-	-	220kV Malbase - Birpara Line	67.92	+	
		-	-	66kV CHP - Chumdo Line	8.77	+	
		-	-	66kV CHP - Gedu Line	5.21	+	
		-	-	3x3MVA, 66/11kV TFR	1.20	+	
		Total	366.78	Auxiliary Consumption & Transformation Losses at Gen. end	0.406%		
4	24MW BHP (U/S)	Unit- I	12.20	220kV BHP - Semtokha Line	46.35	+	30MVA ICT(220/66kV) under shutdown.
		Unit- II	12.10	66kV BHP - Lobeysa Line	22.89	+	
		Total	24.30	220kV BHP - Tsirang Line	-5.01	-	
5	40MW BHP (L/S)	Unit- I	20.40	5MVA, 66/11kV TFR	0.89	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	0.00		
		Total	41.40	Auxiliary Consumption & Transformation Losses at Gen. end	0.883%		
6	126MW DHP	Unit-I	63.57	220kV DHP - Tsirang Line	117.99	+	220kV DHP_Dagapela Line on standby.
		Unit-II	54.91	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.50	+	
		-	-	5MVA, 220/33kV TFR	0.33	+	
		Total	118.48	Auxiliary Consumption & Transformation Losses at Gen. end	0.135%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkor Line	42.09	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	22.82	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.34	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	22.87	+	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Gen. end	1.136%		

Note: Generation-Load Summary (MW) for July 10, 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	1,662.18	256.85	253.03	1,295.03	3.82
2	Eastern Grid	659.20	69.24	65.17	700.26	4.07
	Total	2,321.38	326.09	318.20	1,995.29	7.89

Note: Generation-Load Summary for July 10, 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	1,677.87	227.90	211.22	1,357.18	16.68
2	Eastern Grid	845.13	57.51	53.42	880.41	4.09
	Total	2,523.00	285.41	264.64	2,237.59	20.77

NOTE-MAT,KHP ,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 11, 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	185.52	400kV THP - Siliguri Line - I	0.00		400kV THP-Siliguri Line I under breakdown.
		Unit- II	186.40	400kV THP - Siliguri Line - II	359.41	+	
		Unit- III	186.12	400kV THP - Siliguri Line- IV	343.87	+	
		Unit- IV	183.92	400kV THP - Malbase Line - III	403.48	+	
		Unit- V	185.79	400kV Malbase - Siliguri Line	322.15	+	
		Unit- VI	185.47	-	-	-	
		Total	1,113.22	Auxiliary Consumption & Transformation Losses at Generator end	0.580%		
2	720MW MHP	Unit-I	197.88	400kV MHP - Jigmeling Line - I	294.02	+	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	197.87	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.66	+	
		Unit-IV	197.34	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)	-70.00	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	163.92	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	245.81	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	244.76	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	22.68	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	22.80	+	
		-	-	220kV Tsirang - Jigmeling Line	118.58	+	
-	-	132kV Gelephu - Salakati Line	35.80	+			
Total	593.09	Auxiliary Consumption & Transformation Losses at Generator end	0.575%				
3	336MW CHP	Unit- I	91.57	220kV CHP - Birpara Line- I	102.50	+	
		Unit- II	91.39	220kV CHP - Birpara Line- II	102.17	+	
		Unit- III	91.32	220kV CHP - Malbase Line- III	140.98	+	
		Unit- IV	91.67	220kV CHP - Semtokha Line- IV	6.87	+	
		-	-	220kV Malbase - Birpara Line	58.01	+	
		-	-	66kV CHP - Chumdo Line	6.93	+	
		-	-	66kV CHP - Gedu Line	5.25	+	
		-	-	3x3MVA, 66/11kV TFR		+	
		Total	365.95	Auxiliary Consumption & Transformation Losses at Generator end	0.342%		
4	24MW BHP (U/S)	Unit- I	12.20	220kV BHP - Semtokha Line	44.19	+	30MVA ICT(220/66kV) under shutdown
		Unit- II	12.20	66kV BHP - Lobeysa Line	22.78	+	
		Total	24.40	220kV BHP - Tsirang Line	-2.61	-	
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 Generator end	0.986%		
6	126MW DHP	Unit-I	63.63	220kV DHP - Tsirang Line	126.25	+	220kV DHP_Dagapela Line on standby.
		Unit-II	63.19	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line		+	
		-	-	5MVA, 220/33kV TFR		+	
		Total	126.82	Auxiliary Consumption & Transformation Losses at Generator end	0.449%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkor Line	43.00	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	22.11	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.30	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	27.72	+	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Generator end	0.894%		

Note: Generation-Load Summary (MW) for July 11, 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	1,671.89	265.20	256.27	1,288.11	8.93
2	Eastern Grid	659.09	59.66	55.66	718.01	4.00
	Total	2,330.98	324.86	311.93	2,006.12	12.93

Note: Generation-Load Summary for July 11, 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	1,681.51	198.20	179.87	1,406.11	18.33
2	Eastern Grid	850.70	50.66	48.95	877.24	1.71
	Total	2,532.21	248.86	228.82	2,283.35	20.04

NOTE-KHP,BHP & 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.
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