

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Maximum Load/Demand till Date

Date:	July 23, 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	79.29	400kV THP - Siliguri Line - I	0.00		Unit II,III,IV,V&VI under restoration. 400kV THP-Siliguri Line IV opened. 400kV THP-Siliguri Line I & II under breakdown.
		Unit- II	0.00	400kV THP - Siliguri Line - II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Line- IV	0.00		
		Unit- IV	0.00	400kV THP - Malbase Line - III	78.36	+	
		Unit- V	0.00	400kV Malbase - Siliguri Line	64.75	+	
		Unit- VI	0.00	-	-	-	
		Total	79.29	Auxiliary Consumption & Transformation Losses at Gen. end	1.173%		
2	720MW MHP	Unit-I	197.97	400kV MHP - Jigmeling Line - I	294.16	+	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	197.80	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.87	+	
		Unit-IV	197.63	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)	-23.00	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	152.20	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	225.90	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	225.90	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	32.20	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	32.20	+	
		-	-	220kV Tsirang - Jigmeling Line	89.52	+	
-	-	132kV Gelephu - Salakati Line	23.10	+			
		Total	593.40	Auxiliary Consumption & Transformation Losses at Gen. end	0.568%		
3	336MW CHP	Unit- I	91.49	220kV CHP - Birpara Line- I	93.80	+	
		Unit- II	90.89	220kV CHP - Birpara Line- II	93.78	+	
		Unit- III	91.44	220kV CHP - Malbase Line- III	157.05	+	
		Unit- IV	91.76	220kV CHP - Semtokha Line- IV	4.42	+	
		-	-	220kV Malbase - Birpara Line	31.92	+	
		-	-	66kV CHP - Chumdo Line	7.80	+	
		-	-	66kV CHP - Gedu Line	6.15	+	
		-	-	3x3MVA, 66/11kV TFR	1.10	+	
				Total	365.58	Auxiliary Consumption & Transformation Losses at Gen. end	
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	52.90	+	
		Unit- II	12.10	66kV BHP - Lobeysa Line	23.56	+	
		Total	24.40	220kV BHP - Tsirang Line	-13.80	-	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	2.20	+	
		Total	41.50	Auxiliary Consumption & Transformation Losses at Gen. end	3.551%		
6	126MW DHP	Unit-I	48.32	220kV DHP - Tsirang Line	107.83	+	220kV DHP_Dagapela Line on standby.
		Unit-II	59.97	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	1.60	+	
		-	-	5MVA, 220/33kV TFR	0.30	+	
		Total	108.29	Auxiliary Consumption & Transformation Losses at Gen. end	0.148%		
7	60MW KHP	Unit- I	16.38	132kV KHP - Nangkhon Line	37.74	+	
		Unit-II	16.62	132kV KHP - Kilikhar Line	27.10	+	
		Unit- III	16.60	5MVA, 132/11kV TFR	0.40	+	
		Unit- IV	16.65	132kV Motanga - Rangia Line	44.54	+	
		Total	66.25	Auxiliary Consumption & Transformation Losses at Gen. end	1.531%		

Note: Generation-Load Summary (MW) for July 23, 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	619.06	245.29	241.98	284.25	3.31
2	Eastern Grid	659.65	77.53	73.15	671.64	4.38
	Total	1,278.71	322.82	315.13	955.89	7.69

Note: Generation-Load Summary for July 23, 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	1,678.76	233.27	213.80	1,344.13	19.47
2	Eastern Grid	844.26	58.44	56.19	887.18	2.25
	Total	2,523.02	291.71	269.99	2,231.31	21.72

NOTE-BHP & 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 24, 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	97.82	400kV THP - Siliguri Line - I	0.00		Unit III&IV under restoration. 400kV THP-Siliguri Line I & II under breakdown.
		Unit- II	94.99	400kV THP - Siliguri Line - II	0.00		
		Unit- III	0.00	400kV THP - Siliguri Line- IV	183.21	+	
		Unit- IV	0.00	400kV THP - Malbase Line - III	204.41	+	
		Unit- V	97.82	400kV Malbase - Siliguri Line	175.80	+	
		Unit- VI	99.89	-	-	-	
		Total	390.52	Auxiliary Consumption & Transformation Losses at Generator end	0.743%		
2	720MW MHP	Unit-I	197.75	400kV MHP - Jigmeling Line - I	294.16	+	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 standby.
		Unit-II	197.86	400kV MHP - Jigmeling Line - II	0.00		
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	295.72	+	
		Unit-IV	197.77	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)	-37.00	-	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	155.30	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00		
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	231.70	+	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	231.70	+	
		-	-	80MVA, 220/132kV ICT - I (HV)	29.80	+	
		-	-	80MVA, 220/132kV ICT - II (HV)	29.90	+	
		-	-	220kV Tsirang - Jigmeling Line	98.26	+	
-	-	132kV Gelephu - Salakati Line	22.19	+			
Total	593.38	Auxiliary Consumption & Transformation Losses at Generator end	0.590%				
3	336MW CHP	Unit- I	91.73	220kV CHP - Birpara Line- I	95.38	+	
		Unit- II	90.76	220kV CHP - Birpara Line- II	95.11	+	
		Unit- III	91.78	220kV CHP - Malbase Line- III	157.15	+	
		Unit- IV	91.44	220kV CHP - Semtokha Line- IV	4.93	+	
		-	-	220kV Malbase - Birpara Line	34.97	+	
		-	-	66kV CHP - Chumdo Line	6.23	+	
		-	-	66kV CHP - Gedu Line	5.21	+	
		-	-	3x3MVA, 66/11kV TFR	0.73	+	
Total	365.71	Auxiliary Consumption & Transformation Losses at Generator end	0.265%				
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	48.67	+	
		Unit- II	12.10	66kV BHP - Lobeysa Line	24.10	+	
		Total	24.40	220kV BHP - Tsirang Line	-8.70	-	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.90	+	
		Unit- II	21.00	30MVA ICT, 220/66kV (HV)	-1.55	-	
		Total	41.50	Auxiliary Consumption & Transformation Losses at Generator end	1.411%		
6	126MW DHP	Unit-I	55.32	220kV DHP - Tsirang Line	109.61	+	220kV DHP_Dagapela Line on standby.
		Unit-II	54.85	220kV DHP - Dagapela Line	0.00		
		-	-	220kV Jigmeling - Dagapela Line	0.90	+	
		-	-	5MVA, 220/33kV TFR	0.27	+	
		Total	110.17	Auxiliary Consumption & Transformation Losses at Generator end	0.263%		
7	60MW KHP	Unit- I	16.50	132kV KHP - Nangkhon Line	40.49	+	
		Unit-II	16.50	132kV KHP - Kilikhar Line	24.95	+	
		Unit- III	16.50	5MVA, 132/11kV TFR	0.23	+	
		Unit- IV	16.50	132kV Motanga - Rangia Line	44.15	+	
		Total	66.00	Auxiliary Consumption & Transformation Losses at Generator end	0.500%		

Note: Generation-Load Summary (MW) for July 24, 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	932.30	249.57	245.38	584.47	4.19
2	Eastern Grid	659.38	72.60	68.77	685.04	3.83
Total		1,591.68	322.17	314.15	1,269.51	8.02

Note: Generation-Load Summary for July 24, 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	1,676.80	205.76	190.09	1,397.62	15.67
2	Eastern Grid	850.29	44.93	44.67	878.78	0.26
Total		2,527.09	250.69	234.76	2,276.40	15.93

NOTE- BHP & MHP 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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